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GLEANINGS

IN BEE CULTURE

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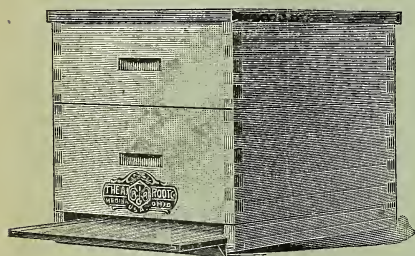
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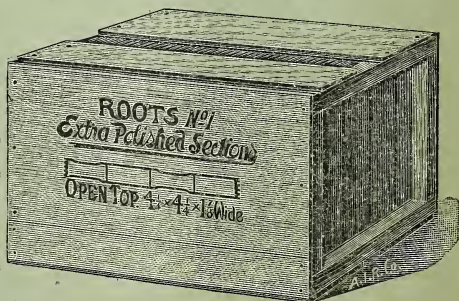


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The A. I. ROOT Company,

144 East Erie St., CHICAGO, ILL.

Vol. XXXII.

MAY 15, 1904.

No. 10



So A. I. Root couldn't get along without posies. Good! I feel sorry for those who have no flowers, and still sorrier for those who don't care whether they have them or not.

CUTTING HONEY WITH WIRE seems to have been carried on in Canada too. John Fixter did it in a more wholesale way than any thing yet reported—had a big wooden tank made so that it could be taken down, leaving a solid block of honey weighing a ton to be wired into little blocks. Good for Canada!

FASHION seems to rule quite a bit in bee-keeping as well as in women's shirtwaists. In Europe it is a rather common thing to have horizontal or long-idea hives. Seems to be the fashion there. In this country Poppleton stands nearly alone. But when a man like Poppleton does a thing, it's the same as if a whole lot were at it.

GOLDEN-LEAVED SALVIA were praised highly by A. I. Root. I got some and set out in a bed. They were not as good as the common kind—merely looked a little faded. Though they weren't true to name, I tried it again with same result last year. Very likely if I'd kept them in the house they would have been as fine as Bro. Root's.

TWO WINGS are shown on p. 438, and not a word said about the lower one. Mr. Beginner, those two wings belong together on the same side of a bee, and you'll see a beautiful relation between them if you'll note that set of hooks on the upper margin of the lower wing, which takes hold of the fold in the lower margin of the upper wing.

E. F. PHILLIPS, p. 439, advises the use of drone foundation. With apologies for the presumption, I demur. Don't the bees

build drone-cells large enough without foundation, except the transition-cells? and if a few drones are raised in transition-cells, will they be in the race at all with their burly brothers reared in the larger cells? [There is a possibility that they might; but I think Mr. Phillips had more in mind queen-breeders putting in drone foundation to make sure that there would be a sufficient number of drones of choice stock and of the right size.—ED.]

YOU SAY, Mr. Editor, that, of course, a section broader than tall, laid on its side, will have one long side not so well filled out as the other long side, and Mr. Hains says no one but an expert would tell the difference. B th probably true. With a bottom starter in a good flow, even an expert could not probably tell which was which without some study. [Yes, a bottom starter would be a great help; but even then one side of the tall section would be a little plumper, or a little thicker, perhaps—not enough, however, to hurt its appearance in the eyes of the consumer.—ED.]

SOMETIMES there is a tendency to sneer at the work of scientific men who know little or nothing about practical bee-keeping, forgetting that sound theory is at the foundation of successful practice. I take off my hat to men like Messrs. Phillips and Casteel, who have the patience to measure the wings of a *thousand bees*, giving us practical bee-keepers the results. [Mr. Phillips is all right. I know him personally—enough so that I can see that he has in him the instinct of a true scientist. He requires to be convinced—not by one case, but by many. The trouble with us ordinary mortals is that we jump at a conclusion because one or two circumstances may point our way.—ED.]

"NUCLEI" is a word that is used incorrectly by bee-keepers perhaps more than any other term in bee-keeping. I've been puzzling for some time over "nuclei-shipping boxes," p. 429, and I can't be positive whether it's right or not. Get Stenog to set his gray matter to work on it, and see what he decides. [Say, doctor, I do not

see how there can be any question if we reason from analogy. Horse-carts, dog-kennels, man-heads, pig-stys, etc., are familiar examples. Undoubtedly the phrase should be *nucleus* rather than *nuclei* as the proper adjective to be used before "shipping-boxes," as each nucleus is shipped by itself. It was simply an oversight.—ED.]

HOWEVER BAD the matter of adulteration in this country, there's a certain grim comfort in the thought that adulteration of honey is worse in Europe than here. [You are sure of that, are you, doctor? If you were to go over the country as I have, and visit the various cities, and see the packages of extracted honey that are put up and labeled "pure," I think you would conclude that conditions *could* be no worse than they are in the United States. The glucose business here is flourishing, and the backers of it are seeking all sorts of outlets, and one of the best outlets is under the guise of honey. I am sorry to say it, but I have about come to believe that honey put up in glass by a packing-house that puts up all kinds of syrups besides, including glucose mixtures—is, generally speaking, not pure. The time will come when the National Bee-keepers' Association, or some organization backed by bee-keepers, will have to put out its own honey properly branded.—ED.]

I'VE JUST read over for the second time, Mr. Editor, your philosophy as to temperature and ventilation of bee-cellars, p. 432, and I think you've got it down pretty fine. You can't give too much fresh air unless it becomes wind, and you can't make the temperature too uniform. If a severe cold spell comes, and it's a question whether to continue ventilation and let the bees get a little too cold, or to keep up the temperature and squeeze down a little on ventilation, it's better to let temperature have the right of way. In reality you are thus taking care of both at the same time; for the warmer you make the cellar and the colder it is outside, the greater the difference in the weight of air in and out, so the greater the ventilation. I think none of this conflicts with Bro. Doolittle's superb success. He succeeds grandly in holding temperature at that point where the least amount of oxygen is consumed, and at the same time the bees are furnished all the oxygen they need. [All the oxygen they need? Even our friend Doolittle has reported having a good many dead bees on the cellar bottom. If his bees could have had more oxygen, and still have the uniform temperature, which I suppose is not possible, there would be fewer dead ones on the floor, and more vigorous colonies. I do not suppose Bro. Doolittle could give more oxygen without putting in a very expensive apparatus for cooling and warming the cellar. He would have to have, probably, hot-water pipes to warm up when the air from outdoors was too cool, and ammonia-pipes to cool off when the air from outdoors was too warm. I expect to try the experiment next year, with a cistern or cellar so far under ground that

the frost can not come anywhere near the walls; then shut off all ventilation, or except such as may percolate through some porous material.—ED.]

THE ADVICE to go no faster than the bees will pay the way is questioned as to its wisdom, by me, p. 428; and in a footnote, Mr. Editor, you take it as in reply to you. I didn't know that you had been a special advocate of that doctrine, but others have. Your position on page 382 I do not feel at all inclined to criticize unless it be the one point where you speak of the increased expense of "sugar to feed," as if feeding sugar were a regular part of the program. I am coming more and more to believe the Germans are right who hold that sugar is never to be fed except as a matter of necessity; that strong brood can not be reared on sugar as well as on honey; that every pound of sugar fed is just so much interference with the honey market; in short, that the perfect bee-keeper will make it his aim never to feed an ounce of sugar.

When talking of increasing to 500 or 1000, you italicize the advice of "*making the bees pay their way.*" That is eminently wise, for in that case a man is generally supposed to have most of his capital in the bee business, and he should keep on safe footing. Perhaps the strongest reason for such a man to go only as the business warrants further outlay lies in the point you make that a man should feel his way until he knows that *he* has the ability to run the business on a larger scale.

It would be hard to emphasize too strongly the advice to go carefully without taking risks and running in debt. That's sound advice, whether it relates to the bee business or any other business.

But all this has little or nothing to do with the advice to every beginner to put it down as a fixed law that he will under no circumstances make any outlay except as the bees furnish him the means. There are thousands of beginners who don't need any such advice. If you care for specific illustrations, say the word and I'll give you instances where a man would be foolish to follow such advice. [Yes, I will admit that there are times and circumstances when a beginner would do well to borrow money in order that he might make the *right kind* of start. There are other times too when a professional would do well, even if he has to borrow money to do it, to buy up a bee-yard in his vicinity—that is, one that might cut down his honey crop. A good bee-keeper has many and many a time paid off debts like this in a single season, and had a comfortable surplus besides. But if one were to multiply illustrations of this kind, without emphasizing the other side—that of conservatism—there might be a great danger of bee-keepers of the beginner class, not knowing the hazards and the uncertainties of the business, plunging in too deeply, and then turn around and curse ye editor for their reverses. When one thoroughly understands that there are

liable to be heavy winter losses, such as we had last year; that there are liable to be failures of honey yields, and, if not complete failures, very small crops, he may then borrow money to increase the working capital, because he knows what he may have to run up against. Some years ago a friend of a speculative turn of mind saw the supers of fine honey I was taking off from one of our hives. He was interested at once.

"How many dollars will that hive net you?"

I figured up the comb honey at 10 cents, or in round numbers \$2.50 per super; and four supers (for it was a fine colony, and the season good) would make an even \$10.00. My friend's eyes began to sparkle.

"How much is a colony of bees like that worth?"

"Five dollars," I answered.

"What! Clear 100 per cent off from the investment?"

"We did it with this colony."

"Say," he said, growing more interested, "what will you charge me for a hundred colonies?"

Then I had to go on and explain some of the uncertainties of the business; and when I had finished my story he thought he could make more money, or as much, in his other business. Over against this I could have cited to my friend many a case where an expert bee keeper went into debt and bought up a yard that had not paid its owner a cent, took that same yard in the old location, and made it return a big per cent on his investment. Yes, I have in mind several bee-keepers, and I could give the names right here, who have done this; but they would not thank me for giving publicity to their localities.—ED.]



Mr. Danzenbaker's new theory in regard to requeneing is well set forth in the following, which I clip from one of our Medina papers:

Francis Danzenbaker, inventor and apiarian, of Miami, Fla., and Mrs. Inez Roden were married at her home in Medina, Thursday evening, Apr. 28. Mr. Danzenbaker is now at the St. Louis exposition in charge of The Root Co.'s exhibit there. Mr. and Mrs. Danzenbaker will eventually make their home in Florida.

In a private letter Mr. W. Z. Hutchinson says to me, "I must write and thank you personally for your very kind words in GLEANINGS for April 1. I sometimes wonder if I am deserving of all the kind things that are said of me by my friends. I hope I am, and I shall certainly strive to deserve them." I don't see why Mr. H. should

doubt what seems self-evident to the rest of us.

W

I sometimes wonder why people with the title of "Professor" before their names say some things they do. Prof. H. D. Gould is contributing some very interesting articles to the *Cleveland Press* on insect life and its development. He starts the series with the following paragraph, which by no means gives me much zest to read what follows:

Bugs and bees, flies and fleas, and countless other denizens of the insect world, conspire to make life miserable to long suffering humanity, and it is the purpose of a short series of articles to point out the cause and cure for these petty annoyances, and, incidentally, to derive from these lowly sources the leading facts illustrative of their habits of life and the marvelous provisions of Providence for their existence.

It is difficult to understand why a man who knows a bee from a bedbug or flea should speak of bees being obnoxious to the human race for the same reason that flies, etc., are. Bees have no natural liking for the human race, and certainly never infest the human form except in rare cases for what they consider self-defense. I have yet to find a man who ever considered a bee on the clover on his lawn as any more of a "petty annoyance" than he would a lot of hummingbirds in his honeysuckles. Bees have been cultivated from time immemorial, and always will be; and their addition to the sum total of human food, and that one of the best, is not only considerable but enormous. But, great as is the value of the bee on account of its honey, Prof. Gould has so far overlooked its still greater importance in the fertilization of fruit-blossoms, which, it is easy to believe, is the chief mission of the bee in its relation to nature at large. In reply to why these things exist, Prof. Gould says:

Right here rises the question, "Why do they exist?" and then comes the answer, "To preserve the balance between the constructive forces and the destructive forces of nature." If there were no insects, plant life would soon overrun the earth. Insects keep down the plants. But, on account of the extreme productiveness of insects, they would soon overrun the earth, and neither plant nor man nor beast could exist were it not for other insects that prey upon the plant eaters, and for parasites that prey upon both.

I give that theory for what it is worth; but, so far as bees are concerned, it is not likely that they destroy an ounce of otherwise valuable vegetable matter in the United States in the course of a year, but add untold quantities of peaches, apples, plums, pears, etc., to the wealth of the nation and of the world. Prof. Gould speaks a good word for the common fly, calling it a "scavenger." He says disease is far less rampant in those years when flies are plentiful. I doubt whether statistics will prove that; but certain it is that they are now justly considered as the greatest disseminators of disease we have, with the possible exception of mosquitoes. They absorb many poisonous substances, but only to scatter them to other places. And then to have the dainty bee, a model of immaculate neatness, classed with flies as a petty annoyance! I say this, remembering that in

this same issue is an account of a child being stung to death by bees. But this child might have been killed by a horse by striking it with a switch as it did the bees, or gored by a cow or torn by a dog or butted by a sheep.

A little aside from the subject of bees, but yet of interest, is something from a Cleveland professor, Dr. C. H. Howe, President of Case School. He was asked in regard to the probability of our having a very warm summer. He replies, "A meteorologist ought to know more about such things than an astronomer, for astronomical happenings have no bearing on terrestrial temperature, outside of popular fallacy." The last part of that sentence, it will be observed, leaves no room for the makers of weather-almanacs to stand on. Better still, it's true.



THE next convention of the National Beekeepers' Association will be held in St. Louis, Sept. 27, 28, 29. It is proposed to make two days of this convention international, and one national. The President, J. U. Harris, says he would like to get suggestions from all sources for the outline of a program.

WHITE CLOVER VERY ABUNDANT THIS SPRING.

I THINK I never saw a greater profusion of young white-clover plants than this spring. The heavy snows of the past winter, and the continual rains and misty weather of the spring, have given white clover a boost forward, the like of which I have never seen. A great pity it is that in these very regions, where white clover promises so much, the mortality of the bees has been so heavy. Some years we have plenty of bees but little clover. This year I fear the condition will be reversed. In either case there will be a scarcity of white-clover honey, the staple of the East:

TWO WESTERN BEE-JOURNALS CONSOLIDATED.

H. C. MOREHOUSE, editor of the *Rocky Mountain Bee Journal*, has sold out the plant, subscription-list, and good will of the paper to Mr. P. F. Adelsbach, of the *Pacific State Bee Journal*, and manager of the Central California Honey-producers' Association. The two journals will be merged, and published under a more comprehensive name, to take in the interests of apiculture in that broad region extending from the Rockies to the Pacific Ocean.

Mr. Morehouse's main business of honey-producing has grown to such an extent that he had no further time to devote to other interests. He starts the present season with 700 colonies, and expects to increase them to 1000. He showed excellent ability as a paragraph writer, and his journal from the very start had none of the appearance of some of the new papers struggling for a mere existence. We wish the new consolidation every success, and in the mean time hope that Mr. Morehouse will not drop out of the field of writing entirely.

GETTING AFTER THE ADULTERATORS.

THE food inspector for Los Angeles, Cal., finds many bogus mixtures. The following clipping, from the *Los Angeles Daily Times*, explains itself:

Thirty-five times Inspector Drummond, of the health department, bought mixtures of glucose and sugar when he essayed to buy extracted honey. While honey is cheap in this most favored of all honey-producing sections of the country, the manufacturers of the adulterated mixture, in which a small quantity of honey was used, must have been able to put it on the market at a much lower price or it would not so commonly be found on the shelves of the retail grocers.

M. W. Worster, salesman for the Southern Syrup Co. was yesterday convicted before Justice Austin of having sold one of the samples taken by the inspector, and was fined \$25.

While Mr. Drummond has bought adulterated samples from other manufacturers, he says that most of the dealers are selling the article put on the market by the concern which Worster represents. It is the intention of the health department to keep after those who sell the sham article until it is driven out of the market. Other complaints are expected to follow.

Inspector Drummond, of the Health Department, is to be congratulated for the active stand he is taking in the interests of pure food and health. This will mean much to the interests of bee-keepers in that vicinity. Let the good work go on.

POPPLETON NUCLEUS PLAN OF CURING BEE-PARALYSIS.

SOME time ago we published the Poppleton plan, as taken from the *American Beekeeper*, of curing bee-paralysis by spraying the combs and bees thoroughly with powdered sulphur, the combs containing brood being first given to healthy stocks. As the disease does not seem to be transmitted through the brood or combs unless they contain dead bees, no trouble results from such transfer; on the contrary, it would be killed if sprinkled with sulphur in the sick colony. Proposing to incorporate this cure in the next edition of the *A B C of Bee Culture*, I asked Mr. Poppleton if he had any thing further to add since his published utterances. In response he writes:

While bee-paralysis can be certainly cured by the proper use of sulphur, yet for several reasons I prefer the nucleus plan. I have had so much trouble with the disease continuing in certain strains of bees that I am satisfied the best way in the long run is to destroy entirely all affected colonies, queens, and all the bees. As this can be done as easily and cheaply as the colonies can be cured by treatment, I very strongly urge that way of controlling the disease. I have been experimenting with it for several years, and have practiced it with the few sick colonies I have had during the past two or three years. I simply make as many nuclei as will be needed, usually one for each sick col-

ony; and as soon as the nucleus has a young laying queen I transfer the brood-combs, one or two with the oldest capped brood of the sick colonies at a time, to these nuclei repeating this operation every few days as rapidly as the nuclei become strong enough to care for them. As soon as all the brood has been transferred from the hives of sick bees I destroy the queen, bees, and all, with sulphur fumes, fumigating the hives at the same time. Sick bees often crawl into empty cells to die; so when transferring combs, one needs to examine them very thoroughly, to be sure not to transfer any old bees from one hive to the other.

The advantage of this method is that we get entirely rid of all diseased bees and queens that might transmit the disease to their descendants in following years, and in their places we have colonies fully as strong, usually stronger, both in bees and combs, with young healthy queens. This is all done without any amount of expense or extra labor, or the loss by destruction of any thing of value.

Of course, there may be times or instances when it may be best to cure the diseased colonies instead of using the above plan. Nuclei can not be formed and built up at all times of year, or there may be other reasons; but as a rule this method has been more satisfactory than to cure and keep the old colony.

Stuart, Fla. O. O. POPPLETON.

I would add that the next edition of the A B C book will contain both of the Poppleton cures, as there may be circumstances where the nucleus method could not be conveniently followed. I might suggest that a combination of the two methods might often be applied very successfully, and thus eliminate largely the objection to the sulphur cure. My combination would be this: Sulphur the colony as recommended for the sulphur plan, and then, when the colony is convalescing, kill its queen and put in another from an undoubtedly healthy strain.

THE OHIO FOUL-BROOD LAW.

I TAKE pleasure in giving the text of the Ohio law passed by our general assembly:

OHIO FOUL-BROOD LAW.

Be it enacted by the General Assembly of the State of Ohio:

SEC. 1.—That whenever a petition is presented to the board of county commissioners of any county in the State of Ohio, signed by three or more persons, all of whom are residents of said county, and possessors of an apiary, or place where bees are kept, stating that certain apiaries within said county are infected with the disease known as foul brood, or any other disease which is injurious to bees or their larvae, praying that an inspector be appointed by said board of county commissioners, said board of county commissioners shall, within five days after the presentation of said petition, appoint a person as bee inspector who is resident of said county, who shall be a skilled bee-keeper, having thorough knowledge of foul brood and other diseases injurious to bees and their larvae and the treatment of the same.

SEC. 2.—The person so appointed shall, within five days after his appointment, file with the said board his written acceptance of the office; or in default thereof, or in case of vacancy, the board shall in the same manner make new appointments until the said office is filled. The inspector shall hold office for two years, and until his successor is appointed and qualified except when, upon petition of ten persons (each of whom is a resident of said county, and possessor of an apiary), to the board of county commissioners of said county, they may remove said inspector for cause, after a hearing of petitioners.

SEC. 3.—Any bee keeper or other person who shall have cause to believe that any apiary in his county is affected with foul brood or other disease, either in his own apiary or elsewhere, shall make affidavit, stating that, on information or belief, he believes that certain apiaries, describing the location, naming the owner or keeper, is affected with foul brood or other disease, and his ground for such belief. On receiving said affidavit from any source, of the existence in any apiary in his county, of the disease known as foul brood, or any other infectious or contagious disease of bees, the county inspector of bees shall forthwith inspect each

colony of bees, and all hives, implements, and apparatus, honey and supplies, on hand or used in connection with such apiary, and distinctly designate each colony or apiary which is infected, and notify the owner, or person in charge of said bees thereof, in writing, or otherwise; and the owners of said bees, or the persons in charge thereof practically and in good faith to apply, and thereafter fully and effectually carry out to and upon such diseased colonies, such treatment as may have been prescribed by the said inspector for such cases; also thoroughly disinfect, to the satisfaction of the inspector, all hives, bee-houses, combs, honey, and apparatus that have been used in connection with any such diseased colonies; or, at his election, the said owner or person in charge of such bees may, within the same time, utterly and completely destroy such bees, hives, houses, comb houses, honey, and apparatus, by first killing the bees (by the use of sulphur fumes when the bees are in the hives for the night), by fire, or burying the same in the ground with a covering of not less than two feet of earth.

SEC. 4.—The county inspector of bees shall have the right to enter the premises of any bee-keeper where the bees are kept, and inspect such bees; and any person resisting or refusing to allow said inspection by said bee-inspector, shall be guilty of a misdemeanor, and may be then and there arrested by said bee-inspector or person deputized by him, and brought before a justice of the peace, and upon conviction shall be fined not less than ten dollars nor more than twenty-five dollars.

SEC. 5.—After inspecting, working with, or handling infected hives or fixtures, or handling diseased bees, the inspector or other person shall, before leaving the premises, or proceeding to any other apiary, thoroughly disinfect his own person and clothing, and shall see that any assistant or assistants with him have also thoroughly disinfected their clothing and person.

SEC. 6.—The inspector shall have full power in his discretion to order any owner or possessor of bees dwelling in box hives, in apiaries where the disease exists (being mere boxes without frames) to transfer such bees to movable-frame hives within a specified time; and in default of such transfer the same shall become unlawful, and the inspector may destroy, or order for destruction, such box hives, and the bees dwelling therein, as a public nuisance.

SEC. 7.—Should any owner of or keeper of, or other person having diseased bees or their larvae, or of any affected hives or combs, appliances, or utensils for bee-keeping, sell or barter, or give away the same, or allow the same or any part thereof to be moved, such person shall be guilty of a misdemeanor, and upon conviction such person shall be fined not less than ten dollars nor more than twenty-five dollars.

SEC. 8.—Should any person, whose bees have been destroyed or treated for foul brood, sell, or offer for sale, any bees, hives, or appurtenances of any kind, after such destruction or treatment, and before being authorized by the inspector to do so; or should he expose, in his bee-yard or elsewhere, any infected comb honey, or other infected thing, or conceal the fact that such disease exists among his bees, such person shall be guilty of a misdemeanor; and, upon conviction, such person shall be fined not less than ten dollars nor more than twenty-five dollars.

SEC. 9.—If any owner or keeper of bees knows of, or, after being notified by the county bee-inspector, that foul brood or other infectious or contagious disease exists in any of the hives in the apiaries owned by or in charge of said persons, and shall fail to comply within ten days from receiving said knowledge, and the date of receiving instructions from the county inspector to cure or destroy the bees or hives or their appliances, such person shall be guilty of a misdemeanor, and upon conviction thereof shall be fined not less than ten dollars nor more than twenty-five dollars.

SEC. 10.—When the owner or possessor of bees shall disobey the directions of said bee-inspector in curing or destroying any diseased bees, honey, hives, or appliances, they shall become unlawful and a public nuisance, and the said bee inspector shall at once destroy said bees, honey, hives, or appliances, and may deputize such additional persons as he may find necessary to effect said destruction.

SEC. 11.—The county inspector shall make a monthly report in writing, under oath, to the board of county commissioners, in which report he shall state the days and number of hours in the preceding month spent by him in the actual discharge of his duties, and shall, in said report, state the name of the owner or keeper, and the location of the apiary upon which such time was spent in curing or destroying said bees, together with an itemized account showing the dates

and amounts, for what incurred, money spent for any discharge of his duties, and to whom the same was paid, and for what services and considerations such indebtedness was incurred, and accompany said report with the affidavits given him under and in pursuance of Section 3 of this act, and make full and complete report of all he did, and results of his treatment of any apiary.

SEC. 12.—After the county inspector of bees in any county shall make report, as provided in the preceding section, said county commissioner shall allow and pay to said county inspector of bees two dollars for a full day, and one dollar for each half day, necessarily and actually employed in the discharge of his duties under this act, together with his necessary and actual expenses while so employed, to be audited, allowed, and paid by the county officers.

SEC. 13.—This act shall take effect and be in force from and after its passage.

It will be seen that this is based on the county plan, and is very similar to the law that has given such good results in Colorado and California. While, perhaps, a law providing for an efficient general State inspector, to have jurisdiction over the whole State, would be better, it would have been simply impossible to have gotten such a measure through our legislature. If our present law is not sufficiently effective it may be used as a stepping-stone to something better later on. But I am inclined to think it will do very well for the time being, and possibly for all time. I would suggest to bee-keepers of other States that they secure first a county law, as it would probably be easy to get such a measure through any legislature.

WEDDING BELLS.

ELSEWHERE we have mentioned the marriage of Mr. Francis Danzenbaker, the bee-hive inventor, to Mrs. Wm. Roden, of this place. We also have the pleasure of announcing the marriage of the veteran queen-breeder, Mr. Henry Alley, to Mrs. Margaret McLean Ball, on the 5th. GLEANINGS certainly wishes both couples great joy and many years of happiness to come. Both of the grooms are well known throughout the whole bee-keeping world. Mrs. Danzenbaker had charge of our department where we make fences for plain sections, including those for the Danzenbaker hive, so that she was not wholly out of touch with bees or with the hive invented by her husband.



SECURING COMBS OF HONEY FOR NEXT SEASON.

"Doolittle, I came over to ask you a question."

"All right, Snyder. Fire it out."

"For purposes of feeding bees, is not a comb full of honey as good as any thing?"

"That is my candid opinion."

"But would it be for stimulating the bees to brood-rearing in the spring?"

"I think so, if rightly managed."

"What would be right management?"

"There are two ways of right management with such combs. In early spring they should be placed close up to the cluster of bees; or, if the colony is strong, just over behind a division-board, so that the bees in carrying the honey would have to go around this board. Any way that compels the bees to move honey from one place to another has a tendency to stimulate brood-rearing. But, of course, there is nothing that stimulates brood-rearing so much as the moving of nectar or honey from the flowers of the field into the hive where it is stored in the cells immediately surrounding the brood. And the carrying of honey from a comb around a division-board, or of the same from a feeder, comes next; and the taking it from a comb just outside the cluster, last. But if any colony is weak, or the weather is still cold in early spring, it would not answer to put the comb beyond a division-board, on account of robbing with the first, and because it would do no good with the latter. Judgment must be used in all of these things."

"What of the second way?"

"That is to be used a little later in the season, after the colonies become a little stronger and the weather more settled and warm. When such a state of affairs comes about, and there is no honey coming in from the fields, then partially break the sealing to the honey by passing a knife flatwise over the face to the comb, when it is to be set right down in the center of the brood-nest."

"Why do you do this?"

"On the same principle as before."

"How is that?"

"Before, we were making the bees carry the honey from the fields, the comb outside the division-board, or from the outside of the cluster, to the cells immediately surrounding the brood; and this carrying was the means of their thinking they were in a prosperous condition, just the same as a man thinks he is prospering when he is moving treasure into his home and about his fireside. And placing this frame of honey with broken cappings in the center of the brood-nest, right between combs of brood, not only gives the bees the idea that they have struck a bonanza, but sets them to removing this honey, all warmed up and made thin similar to the nectar from the fields, removing the same from the inside of the cluster to the cells around the brood on the outside of the same; and in this stir thus caused, the queen is incited to greater activity, and finds plenty of unoccupied cells right in the warmest part of the hive. Of all the ways of coaxing an advance in brood-rearing, I know of nothing that is so much of a success as this, except the bees bringing in nectar from the opening flowers."

"This looks quite reasonable, and such a course would require much less work with less expense than would the making of sugar syrup, feeders, and the nightly feeding of bees for weeks at a time. But how can I secure these combs of honey? It would take lots of them if a man kept many colonies."

"Yes, a great many combs could be used advantageously in this way, and oftentimes such are almost a necessity to supply bees with winter stores, where short, and also to keep colonies from starving in the spring. I intend to keep as many as two full combs of honey to each colony I expect to have in the fall, so that I may be fully supplied for any emergency that may come along; and if these combs of honey are not needed for feeding, then they can be used for this stimulative feeding; and should the flowers yield nectar so they are not needed for this purpose, then they can be used to advantage in the swarming season."

"Yes, but that is not answering my question of how I can obtain them."

"In GLEANINGS for Feb. 1 I told something of how I made shook swarms, and how I kept tiering the brood as the bees were shaken off it on the weaker colonies in the apiary, till I finally had combs massed on some colonies till some had four and five stories."

"Yes, I remember reading that conversation."

"Well, now, instead of carrying that out to such an extent as there given, which was on the plan of securing all of the comb honey possible, and using only bees enough to protect the broodless combs from the ravages of the wax-moth, stop the tiering of brood with only two stories of the same over a rather weak colony, using a queen-excluder over the lower hive having the queen in it, and, when fall comes, unless the season has been very poor you will have twenty combs filled solid with honey. If the season proves to be a good one, then I keep adding hives of combs as they are filled, till the season for honey is over; and in this way I often get 40 L. frames nearly solid full of honey; for you will realize that those hives of brood give monstrous colonies in bees at the end of 21 days from the time the brood was given."

"I see now, and the way is very simple, also."

"Yes, and there is no loss with it either; for if we get more of these combs of honey than we need, it is the easiest matter in the world to extract from those combs when we have all the honey not needed by the bees in a perfectly salable form, and just as good, to all intents and purposes, as if we had worked those colonies for extracted honey."

"Truly. I wonder I did not think of it when I read that February first conversation. But you said something about using these full combs in swarming time. What about that?"

"As much of this honey as is not needed

for feeding, either in fall, winter, or spring, and we have not considered it best to extract, it can be used to advantage by giving the combs to our new swarms, whether they are from natural swarming or made on the 'shook' plan."

"How many frames of this honey would you give to a swarm?"

"If the season previous has been a poor one, and the combs are only half to two-thirds full of honey, then you may secure the best results by hiving your swarms on the full number of frames your hive contains, and putting the sections on at the time of hiving. But if the combs are completely filled from top to bottom, and from side to side, it will be better to use only half the number your hive holds when hiving swarms, filling out the rest of the hive with wired frames full of foundation."

"Why do you made the difference between full frames of honey and those partly full?"

"If a swarm is given a full hive of full combs of honey the bees may be thrown into an abnormal state and not carry much of the honey to the sections, as they generally will do with nearly the whole, where only a few are used. If the bees do not immediately start to carrying the honey from these full combs, the result will be little or no honey in the sections, and little brood and few bees in the hive in the fall—they apparently concluding that they are *all* full of honey now, ready for winter, and so loaf the rest of the season away. But where part of the space is empty, enough to start them laboring, then the queen gets a good start, and pushes her egg-laying till nearly all of the honey given is put in the sections in salable shape."

"I see now. But I'll be going. Instead of the one question I thought to ask you when I came, they have kept coming and coming. I hope I have not wearied you."

"No. I wish to have every thing made as plain as possible when any one desires knowledge on bee-matters. I know that was what I wished when I was a beginner in apiculture. But there is one point I came near forgetting, which is this: If the combs of honey which you have are of an inferior quality, or of dark color, or both, then the only thing to do with them is to use this honey for spring feeding; for if such inferior honey is given at swarming time, more or less of it will find its way into the sections, and become mixed with that coming from the fields, thus injuring the sale of the honey stored, and giving yourself a bad reputation, or a bad reputation to your honey."

Convention Notice.

The Victoria Co. Bee-keepers' Association of Ontario will hold its annual session May 23, at Little Britain. We expect Wm. McEvoy and other prominent bee-men to be present. Sessions will be held at 10 A.M. and 2 P.M. All interested are invited.
Cresswell, Ont. A. NOBLE, Secretary.

HOW TO TEST A QUEEN.

A Great Red-clover Queen.

BY EVAN E. EDWARDS.

In 1895 I requeneed most of my apiary from a purchased queen. The result was disastrous to the next year's honey crop, the new blood proving worthless. The lesson was so costly that I resolved never to breed from a queen until she was thoroughly tested. I offer my experience that beginners may not fall into error.

My method, briefly, is to send the cash to some reliable breeder, asking for a queen for "business." On arrival she is given to young nurse bees only, at evening, enough of the good candy being gouged out so she will be released before morning. The nurse-bees, queenless for several hours, accept her readily. I allow no stock running in the yard, not even a chicken which might fly upon the hive, jarring it and thereby causing the queen to be in danger of "balling."

After several days I proceed to test her, using the following table of gradation, based on a scale of 1000 points:

THE QUEEN.

1. Prolificness, from zero to.....	1000
HER PROGENY.	
1. Honey-gathering.....	975
2. Non-swarming.....	12
3. Gentleness.....	5
4. Long life.....	4
5. Size of workers and drones.....	4
Total for the progeny.....	1000

Honey being my object, "beauty" is not considered at all. I do not add *size* to a queen, because, if she is *prolific*, she will have the size 99 times in 100. When I get a queen having a small thorax and a short, dumpy abdomen, I know she will fall short.

A small abdomen, little ovaries, a stunted capacity for egg-laying, are the rule. I should prefer to buy my queens by weight if such a thing could be done. It takes a 10-frame hive to test the queen's capacity. If she fills it to overflowing, practically all the frames full at the beginning of the harvest, I give her a high grade. If she lays only a few frames full, not enough larvæ to consume the pollen, she is graded accordingly. One frame of brood would equal 100; two frames, 200, etc. If she grades high and her progeny low, or if she is low and her progeny high, then I do not breed from her.

How long does it take to test a queen? I buy mine in mid-season. I get a *partial* test on *prolificness* of the queen—a fair notion of gentleness, size, and honey-gathering qualities by the close of the fall crop. The following winter will test long life.

But the real severe test, and the one that settles the question, is the succeeding harvest. If queen and progeny equal or outstrip the stock I already have, then, and not until then, do I breed from new and strange stock. When I conclude to do so I never fail to carry the test a little further by rearing a granddaughter or two to guard

against "back" breeding, for it sometimes happens that the daughters of a queen are the best, yet some of the granddaughters develop undesirable traits. When I put a queen through this ordeal she is "tested." If I requeen my apiary from her she is "select tested."

In 1896 I got a queen from the Roots. The next season showed her superiority over any thing else in the yard. With every colony replaced from this strain I secured an average of 112 lbs. of comb honey per colony.

A GREAT RED-CLOVER QUEEN.

This past season made me an average of 168 lbs. to each colony. I have held on to this strain for dear life, never expecting to find its equal; but in May, 1901, I sent to Root for a red clover. She came in July, was put through the test, and, without any help of any kind from other colonies whatever, made 308 lbs. of comb honey, and never swarmed! Four colonies having her daughters never swarmed, one producing 196 lbs. Well, I have reared queens now "for all there is in it" from this breeder, and intend to hold on until I can better it. The honey came from white clover. Bees do not work on red clover here except when, by drouth, dry weather following the first cutting, the corolla-tubes are shortened, which has occurred twice in seven years.

I am testing queens every year by my method, getting from well-known breeders. I have been using the "red clover" and one of Moore's strain, which is very good also. For the coming harvest I have one from Alley and one from Victor.

Having no ax to grind in writing this article, and no queens to part with, this is not to be construed as an advertisement for me.

[I hesitated somewhat about letting the three last paragraphs in our reading-columns; then I finally decided to let it go, because it emphasizes a valuable truth that many honey-producers do not take into consideration; namely, that they can increase their profits by getting a good breeding-queen. I am frank to admit that not all the queens sent out by the Root Co. have been equal to this one. While we make a specialty of breeding from stock that excels every thing else in the yard for honey-production, it is, nevertheless, a fact that all the daughters of such queens showing such remarkable qualities will not come up to the performance of their royal mother. For example, one of our customers bought several queens of the red-clover stock. He put them into his yard, and in a year afterward reported that they fell far short of his regular mongrel strain; and he gave us a regular raking-over for selling him such "scrubs."

When I visited Mr. J. F. McIntyre, of California, one of the most successful as well as extensive bee-keepers in the United States, he showed me one row of hives that contained daughters from one of his best honey-queens. It was very apparent from

the flying at the entrances (for it was in the height of the honey-flow) that this row of colonies was doing much more work than the rows on either side of it that had common stock. The old adage that blood will tell generally applies, although there will be marked "exceptions that will prove the rule."—ED.]

FILLED SECTIONS WITHOUT POP-HOLES.

How to Prevent Full Sheets of Foundation from Kinking or Buckling when Sections are Placed in the Super.

BY G. J. YODER.

In apiculture no other part has been more experimented on than that of getting sections well filled. From the earliest use of sections it was necessary to have a guide or starter to insure straight work; and before the advent of comb foundation I had a few colonies to build new comb to make starters of for sections, varying from one inch square to (in length) the width of the section, and one inch wide. Upon the advent of surplus foundation there were objections on account of too much wax with the honey, especially when large starters were used. This, however, was soon overcome by the thin and extra thin, and at present many are yet using only the top three cornered starter, while some are also

using narrow bottom starters to insure the honey being built well down.

This is a good feature, as a section even well filled to within half an inch of the bottom of the section lacks in weight, strength, and general appearance. The time has come when nearly every large comb honey producer agrees that it is necessary to use full sheets of foundation in order to gain the best results; and right here is where many a blunder is made, not fastening the foundation right to the upper side of the section, leaving it bearing against one side of the section; then when it is placed in the super it kinks over, thus giving poorer results than if a smaller starter had been used.

Many of the foundation-fastening machines, if rightly managed, do splendid work in a single section way; but it is necessary to cut the foundation a little narrower than the inside of the section, so as to hang clear; but to insure the least amount of pop-holes it is best also to fasten the foundation to the side of the section. This has been mentioned in GLEANINGS as not being practical; yet we have succeeded so well with a few thousand sections, and the results were so favorable, that we are convinced that we have overcome the difficulties heretofore mentioned. Here is our way of doing:

Cut a board the width of the height of the inside of the section you wish to use, and four inches longer than the width of four



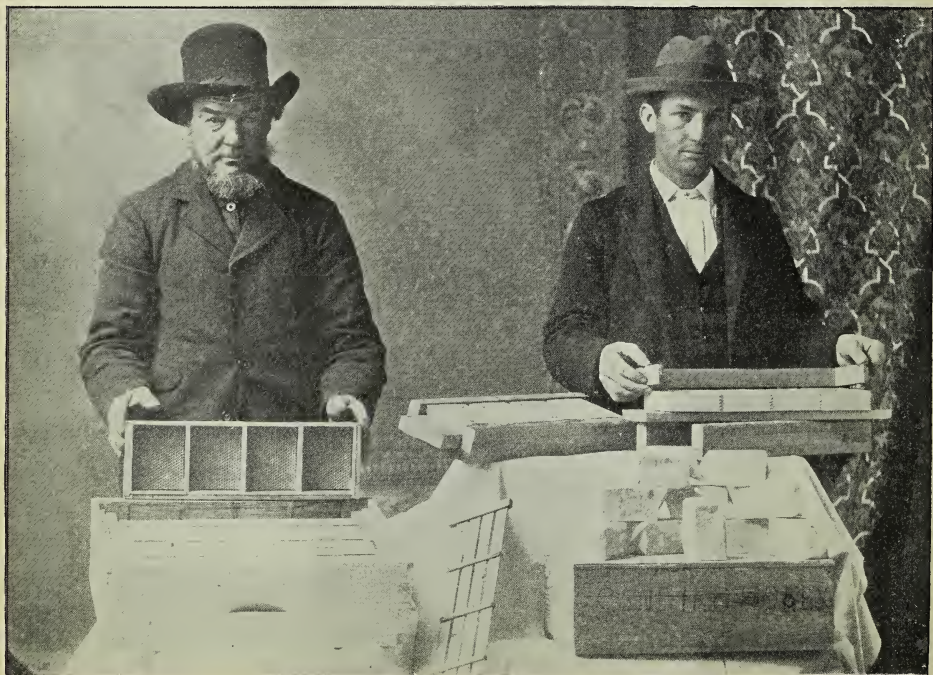
YODER'S APPARATUS FOR PUTTING IN SNUG-FIT SHEETS OF FOUNDATION.

sections outside measure. Next make four blocks the size of the inside of the sections, and in thickness half of the section less half the thickness of foundation to be used. Now place the blocks on the board square, in such a way that the four sections slipped over them take up all the space between the blocks side by side, and yet let the blocks slip readily out of them. Next take a board a little longer than the width of the four sections, and wide enough to admit a two-inch strip on each side—just wide enough apart so that the board with the blocks on will readily drop into it *without the sections*. This, when nailed together, we will call the trough. Have every thing work smooth, but close. Now place your sections on the board with the four blocks, which we will call the tray. Place a section-holder over the sections; bring the tray over the board, with the side strips, or trough; drop the tray into it, and out of the sections; take hold of the section-holder, pressing slightly inward, and you have the idea how they are to go into the super after being filled with foundation in the manner to be explained. Have every thing work well before you try it with foundation. Now to proceed to business.

We cut the foundation in a miter-box to fill the section snugly, except $\frac{1}{4}$ inch at the bottom. Provide a dish in which to melt clean wax and a little rosin, and mix well while heating. Make a thin wooden pad-

dle, $\frac{3}{4}$ to one inch wide. Pick up the tray, fill it with sections, and put in the foundation cut to size. See that it is fitted to top and sides of section, lying flat on the blocks. Holding the tray in one hand with one end toward you, tipping to such an angle that, when the wax is dropped with the paddle, it will strike the section where the foundation joins, and quickly run down along the edge toward the top of the section. The moment it reaches the corner of the section, tip the tray so it will pass on one end or side until used up.

A little practice will enable you to do the work with two applications, one from each side of the section. When all four sections are thus treated, lay the tray angling on the trough, as in the photo. Place the section-holder over and around the sections; give the tray a twist, and drop it out of the sections into the trough. You now have the section-holder with the four filled sections which you can place in the super without the least danger of kinking or doubling. You can even fill the entire section, fastening the foundation on all sides, and have the sections filled solid without a pophole, according to circumstances in honey-flow, and whether the full sheet settles, thus placing a little too much wax at the lower part of the comb. It is not even necessary to fasten the sides more than half or two-thirds down. I have hauled supers thus filled for twenty miles without damage.



YODER & SON'S BRICK CANDIED HONEY.

Some may object to the use of rosin; but it is essential to have it in to help harden the wax quickly, and make a sure thing of it. I have used rosin in wax to fasten foundation ever since the advent of foundation, and the bees never objected to it. Some may prefer something else than the wooden paddle to apply the wax to foundation; but by being careful to drop the wax from one corner it is very quickly done; but when the wax is too hot, and the tray held too flat, there is liable to be trouble in having the foundation pasted to the tray. If wide frames are used instead of section-holders, it is advisable to place them over the sections before the foundation is fastened.

Meridian, Idaho, March 24.

[Your plan will work; and, in spite of the fact that it is a good deal of labor, it may pay in the extra price secured for the honey, for the honey would be "fancy." Your tray and trough are all right; but in my opinion you could have a much more rapid method of fastening the foundation to the sides and ends. A couple of hot plates one to be kept on a lamp-stove while the other was being used, would do the work more rapidly. A rubber bulb about the size of an egg, with a tin tube secured in it, could be filled with hot wax. A slight pressure of the bulb in the palm of the hand would deliver a small stream of wax and rosin clear around the section, when the next section could be filled in the same way.

But, say—you didn't tell us any thing about those bricks of candied honey shown in the photos. I suppose you cut them with a wire.—ED.]

HOFFMAN FRAME CONDEMNED; ITS WEAK POINTS.

Smokers, and how they can be Improved.

BY F. N. SOMERFORD.

In your editorial on p. 121, in referring to the many extensive bee-keepers who use Hoffman frames exclusively, do they not do so simply because the manufacturer forces them into it by not sending out a suitable frame with the hives furnished to dealers?

You say, Mr. Editor, that in Cuba ten Hoffman frames are used to one of the other styles. Such may be the case; but why is it thus? Simply because they are forced upon us by local dealers and manufacturers. We can get no other that has any strength; but the Hoffman is a weaker frame than most parties think. Even yesterday, in shaking bees from frames while extracting I shook the ends from two of these frames, and they are miserably awkward to handle. The ends or projections are very short, and the end-bars are so broad that they are a nuisance for uncapping. They place too much wood between the brood and the super for comb honey; and as for their preventing burr-combs, I

deny that heartily; for have I not been scraping some of them this very day to put excluders on?

In the brood-nest they are a nuisance too, except to a novice or a person not knowing how to space frames. They are too hard and unhandy to take out from the brood-nest, because one can't push a frame or two back on either side of the one he wishes to lift out as with loose frames. By thus shoving the loose frames over, one can be drawn out without exciting bees or queen, but not so with the Hoffman. I feel sorry for a man who has hives full of bees with Hoffman frames who wishes to catch queens.

Make the Simplicity frame stronger or thicker at top, sides, and ends, and it will be the frame. Mr. T. F. Bingham well says, "A small good smoker is better than a large bad or poor one," page 132.

I have read after a great many critics on the subject of smokers, and for more than four years have felt like sounding a note against the slipshod way in which Mr. Bingham fastens his smokers together.

The fire-box is fastened on to two narrow thicknesses of tin at each end, which have not sufficient strength for holding a toy, much less a tool with which to work. A lady with a dozen hives for pleasure might possibly use a Bingham smoker a season without its becoming loose and shakily; but the every-day bang and jerk and wear and tear of bee-keepers who make their living from bees, and devote their time to bees, smokers, and honey, need something more substantially anchored to its moorings than is the Bingham smoker.

Of the many smokers that I have used of this make, I can't remember more than one or two which did not break, either from the fire-box or from the bellows. I have just recooped, riveted, or fastened down two Bingham Doctors the present week. I have four of them, and one Corneil in use. These smokers would be all right if they were always kept as light as they are while standing on the shelves of a supply-house. But when loaded for business, with half-seasoned wood, the weight is more than the strength of those two little tin strips will bear, so they soon become shackled, and break off; and the larger the quicker, for the larger ones. The smoke-engine is weaker than the Doctor; so also is the Doctor weaker than the smaller ones, because, while making of greater capacity to hold more, they weigh more when full, yet no provision has been made to hold them together by increasing their strength.

I like the large smoker, but will never buy another until something is done to strengthen them. The Doctors are bad enough, and for hired help and outyards, hurry or rush work and robbers, and constant every-day work, they are unfit as now made.

The hinge is defective too, as made on the Bingham smoker; and of all smokers the Corneil stands the wear and tear the best;

but, owing to the narrowness of the bellows, and poor quality of leather, it eventually becomes a miserable sniffer.

A smoker which has no hook is unfit for rapid manipulation of bees in an apiary of painted hives, gable or excelsior covers, or flat painted ones; for where is one to put the smoker if he does not wish his covers scorched? Would you have a fellow put his smoker on the ground, and stoop down after it every time the bees need a puff of smoke? To follow that plan every day for a week would not be conducive to friendly feelings toward the manufacturer from the bee-man.

I have painted holes in my pants-legs more than once by holding hot Bingham smokers between my knees to have them ready to give the bees a puff of smoke just when they needed it. I don't deluge my bees with smoke upon opening a hive. I just give them a few good puffs, and go ahead with the manipulation; but I want the smoker handy to give an additional puff when necessary, and therefore a hook is most essential to enable me to dispose of my smoker quickly, and yet still have it in easy reach when needed.

Incorporate the hinge, the iron legs, and the hook into the makeup of the Bingham smoker, and it will be all right, and soon win the love and faith of every bee-man.

If the manufacturers of Corneils would put Bingham bellows on the Corneil it would be just the thing too. Which of you are awake to the needs of the fraternity?

San Antonio de los Banos, Cuba.

[I would hesitate to publish this article, criticising as it does the goods of a competitor; but inasmuch as the writer "wades into" the goods made by ourselves I concluded to let it go in. Mr. Bingham can, of course, answer his part of this article.

Regarding the Hoffman frames, it is true there are ten of them used to one of any other among modern bee-keepers in Cuba; and perhaps it will surprise you to know that some years ago I formed the opinion that the Hoffman would not be suitable for a climate like that of Cuba, and strongly urged our agents to get their customers to use, instead, the unspaced frame, or, as you call it, the "Simplicity frame made stronger and thicker at tops, sides, and ends." An effort was made to make a substitution, but the bee keepers would not have it so. When our Mr. Boyden went through Cuba he interviewed quite a number of bee-keepers, and found they were decidedly friendly toward the Hoffman in spite of some of its objectionable features.

The Hoffman frame, like every other good thing, is not perfect. Supply-dealers have learned that bee-keepers are a peculiar lot. What one uses and praises, another will condemn; and the strange part of it is, the "condemner" does not see how the "praiser" can possibly use such a useless device. We find examples of it in the preferences for kinds and styles of sec-

tions; styles of separators; kinds of smokers; and, right here, if there is any one article that has ever been offered to the trade that has given general satisfaction it is the Bingham smoker that our correspondent condemns. As a competitor of Mr. Bingham, I am glad to offer this statement; but especially since it illustrates how differently people will look at the same article.

You "deny heartily" that "the Hoffman frame is proof against burr-combs," implying that some manufacturer or dealer had claimed that such was the case. If you will look at any of the Root Co.'s catalogs you will see a statement that has been running for years, and is still going. In the paragraph that refers to thick-top frames we say "that there will be very few burr or brace combs;" and this is literally true from an extended observation I have made all over the United States, when such frames are compared with the ordinary thin-top frames of years ago. There is no thick-top frame that is proof against burr-combs* entirely. They will accumulate to some extent, especially where the brood-nest is crowded and the honey seasons are heavy, but nothing like what they will do with the thin top-bar.

You object to the shortened projection. If you will refer to the catalog before mentioned you will see that Hoffman frames are supplied with long and short projections. Then you will also find the old Simplicity frame, which you say will be perfect if made heavier, thicker, and stronger, is offered for \$1 00 extra.

You complain that the projections to the top-bars are weak. That is true, but we can't change this without changing all the L. hives in use. If father Langstroth had made his top-bar projections $\frac{1}{2}$ inch thick in the *first place*, we would not have this trouble now. But why handle the frames by the projections? I have proved that for myself there is no need of it. I always pick up the frames by the *corners* inside of the end-bars. When one gets used to it, it is handier than the other way. It certainly insures a firmer grasp for shaking. It is sometimes better to unlearn old ways and acquire new ones. We scarcely realize how we are wedded to old practices until it is suggested that we divorce ourselves from them and adopt new.

The reader will pardon what may seem to be something like a trade talk; but there are hundreds of people who wish to know the truth on both sides, and we have given both sides of the question. Let me emphasize more strongly than I have done already the fact that a device that is regarded as simply perfect by one bee-keeper may be condemned to the extent of absolute abhorrence by another one. Supply-manufacturers have been compelled to meet the need of various preferences by furnishing several different kinds and styles of frames—frames shallow, frames Langstroth depth,

* When I use this term I mean combs built on top of the bars.—E.D.

frames Quinby depth, frames unspaced, part closed-end frame, and closed end throughout, etc. The same variation exists in the hives and in the supers.

Speaking about smokers, I am rather of the opinion that it would be better for Mr. Bingham and ourselves to use a much heavier grade of stock in the stoves or fire-barrels of smokers where the same are to be used by bee keepers operating 500 colonies or more. I am sure friend Bingham will be perfectly willing to furnish—certainly we are—a heavier grade of metal for those who desire it, at an expense that will be only trifling; but it will hardly be necessary to tax the great majority of smoker-users with an expense that will be entirely unnecessary by making all the smokers of heavier stuff. This whole question of supplies resolves itself down to the matter of furnishing each bee-keeper what his special needs call for.—ED.]

SELLING HONEY.

A Convenient Traveling-outfit; an Excellent Article.

BY G. C. GREINER.

Selling honey on the road is, for many of us, not an enjoyable occupation, and it is made still more unpleasant if we have not a convenient outfit.

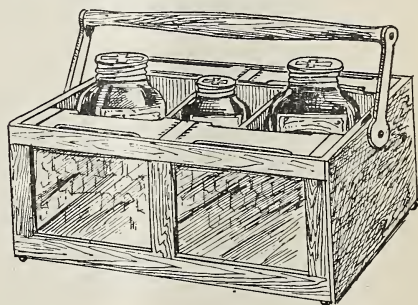
For a number of years I have used a square-box one-horse buggy for my honey-expeditions. Although convenient in other respects, it did not serve this special purpose. To take my usual daily load of from four to six crates of extracted honey, and a small allowance of sections, I had to call into service all available space under the seat, on the seat, on the bottom in front of the seat, etc., which contracted my allotment of space to most uncomfortable quarters. But this was not the worst feature. As much as I tried to keep my goods clean, and keep them from getting dusty by covering up with blankets, when I uncovered them to make an exhibition they would have, to my annoyance, a very perceptible coat of dust all over them. When it was muddy,



and no dust flying, the same trouble had to be encountered. The wheel would occasionally throw chunks of mud in the box; these would work themselves under the crates, be pulverized by the constant motion of buggy

and crates, and, consequently, the unsightly appearance would be the same, wet or dry. I was generally compelled to give my samples a regular dusting before I could make a call to show my goods.

To get out of this dilemma I studied out and built during last summer's leisure hours the wagon which is shown by Fig. 1. It is the same running-year, the old box being removed and the new one put in its place. Outside of my own work the whole expense of the rig does not exceed \$2.00—a mere trifle in comparison to the convenience and its adaptability to the business. Most of the material is taken from discarded dry-goods boxes which were lying around and considered worthless.



The advantages of the rig are many. The enclosed back part is practically dust and water proof. Being a double-decker, the space for storing is ample. It will hold four crates below, and, if necessary, the same above, the quantity it was designed to carry. The open front and seat are spacious enough to provide a comfortable place for the driver, with an additional large storeroom below the seat.

As will be noticed, the wagon is conspicuously lettered "Pure Honey." This is one of the most important features of the rig. It helps to make many sales that would otherwise not be thought of, and it saves the salesman an unlimited amount of talking and a great deal of time. As an illustration I will refer to only that one case when the druggist was induced to inquire for the honey-man, and the sales that followed, just because "Pure Honey" was in plain sight.

To make the advertisement complete, my name and address are added. This, too, is, in many instances, the cause of sales. A short time ago, when I was driving along the street of one of our neighboring cities, a passerby on the sidewalk motioned to me to stop. Then he said: "If you are the Greiner who supplies such and such a place, I want some of your honey." Of course, a sale was made right there and then, which tallied one more for the lettering.

In Fig. 2 is shown the sample case, which I take with me whenever I enter a house or store where I expect to sell honey. I al-

ways sell right from the case, and refill again when I return to the wagon. Formerly I used a small valise in which I carried one can and a glassed section as samples. This answered quite well until it appeared to me that a more attractive and inviting display of my goods would be a great advantage. In this I was not mistaken. My little sample case just filled the bill. It is simply a partitioned-off crate, glassed on both sides, with jointed handle. It holds four sections and three cans; being all finished off in good style, stained and varnished, like any well-made furniture, it presents, when filled, a neat and tasty appearance. Like the lettering on the box, it speaks for itself wherever I expose it to view, and I am almost always sure of a sale if I can induce the members of a household to notice it at all.

In conclusion let me say once more—that can not be repeated too often—that in selling honey it is the neat appearance that has a great bearing on being successful as a salesman. Honey being naturally a mussy article to handle we have to take extra pains to present it in clean shape. I never load up my wagon without using a damp cloth on all my cans that show the least sign of dust or stickiness, and the same with sections. I examine every one before I start out. If any have leaked and are daubed up, or dust has gathered on them, the damp cloth is called into requisition.

La Salle, N. Y.

MODERN QUEEN-REARING.

Swabbing a New Cup with Royal Jelly is all that is Necessary to Have Them Accepted; Cell-protectors Unnecessary with Wooden Cups; the Advantage of Flange Shells; Queens Laying in Compressed Cups; only 200 Bees Needed to Mate a Queen.

BY E. L. PRATT.

It was at the suggestion of Mr. Alley, I believe, that this controversy on queen-rearing methods has started. It's interesting, Mr. Editor, and I hope you will keep it up until all on the subject is out.

I have carefully read what your Mr. Phillips has written, and find that your practices at Medina pretty closely resemble those at Swarthmore. There are a few points, however, I take the liberty to criticize as being either wasteful, and in some cases extravagant or unnecessary.

In the use of royal jelly, for instance, upon which to deposit the larvæ when lifted from the comb—such a practice is fussy, and entirely unnecessary, therefore wasteful—wasteful in time, patience, and quality of queens. Larvæ at an age fit for transferring have no mouth for eight hours, and have no use for food if it is given them. Even if they had use for it, is stale food wholesome? The bees say no, and at once proceed to remove the obnoxious stuff. There is but one good purpose to which

second-hand royal jelly can be put, and that is, to swab into new cups to give them a prime odor. Then if you will give the cups to any bees they will clean them out fit for the reception of royal larvæ, and you may rest assured that cups thus treated will be accepted every time without fail.

Mr. Phillips recommends the cell-protector when ripe cells are given to queen-mating nuclei—an entirely unnecessary practice when wooden compressed cups are used. Bees are apt to destroy cut or broken cells because of the ruptures in the wax about the base, made by breaking or cutting the cells from a comb or bar. They seem to attempt to mend these ruptures, and in doing so, accidentally or otherwise, cut into the delicate fillet of the cell, after which the hole is soon enlarged and the larva is at last cast out. Not so with cells built upon wooden cups, for the simple reason that no ruptures are made in removing them; they remain natural—cell, base, and all—just as the bees built them—no mending is needed, therefore no destruction occurs. *Cells built upon Swarthmore wooden cups may be placed in the midst of any colony as soon as the old queen is removed from the hive; and if they do not hatch before twelve hours the virgins will be allowed to live and mate.* Cell-protectors, for protecting cells, are out of place in modern queen-rearing, for there is no real use for them.

Another wasteful practice is the destroying of good compressed cups each time virgins have hatched from them. Why not have a cell-cleaning board on top of some hive, in a convenient location, into which board all cells may be quickly thrust at any time? The bees will then clear the cups out ready for another grafting, and still another and another. A good stock of reconstructed queen-cells is one of the most valuable requisites to a queen-rearing yard. We have cups that have been in use for more than three years—the oftener they are used the better they seem to work, so say a good many who are using wooden pressed cups.

The most wasteful practice of all in cell-handling, it seems to me, is the leaving-off of the flanges on the wooden cups. By the way you work them, attached to the under side of a bar, in the middle of a frame, you are obliged to disturb your colony each time an examination is made, which not only sets the bees and the cells back, but entails a lot of unnecessary labor in lifting combs, smoking, in prying, etc. The idea of the wooden cup is to *save* time and labor. When you leave off the flange and substitute a tack you destroy half the labor-saving quality of the cup. You can not get at your cells attached to the under side of a bar, in the middle of a brood-frame, without lifting the comb. Cells do just as well, and in many cases better, on a line with the top-bars in the midst of the brood-chamber. This being so, why not have your top-bar removable to save drawing the frame? Then all you will have to do to cage a lot of cells behind perforated zinc is

to lift the bar and insert it in an open-top frame. By boring a series of holes in this removable top bar you will have something still more convenient, in that you can remove one or all the cells at any time without disturbance to the colony. Simply thrust the wooden cups through the holes, and they are in such position that they can be manipulated, one at a time or by the barful, through a split in the sheet without tearing the colony asunder each time you go for cells. Much smoking and much handling destroy bees' prospects at honey, and in wintering well. The flange will prevent the cup from dropping clear through, and they are never waxed enough to prevent their ready drawing without the least trouble. We seldom use smoke in cell-shifting nowadays.

Why does Mr. Phillips do his grafting from large combs when small ones are so much more convenient to handle? Furthermore, the life of a breeding queen can be prolonged on small combs. If a small comb, filled with compressed cups, is placed in the midst of the little breeding-hive, the queen will lay directly in the cups and save the trouble of transferring or grafting larvae altogether—simply remove the cups and set them in holding-shells, supplying other cups in the frame for the queen to lay in. As with the grafting-cup, these forcing-cups may be used over and over.

In closing I should like to venture the statement that any queen-rearer who uses more than a hundred or two of bees in a nucleus for mating a virgin queen is not using the most economical plan. We seldom put more than 100 bees, often less, into our fertilizing-boxes, which we shall this season set out in large numbers; and if you happen our way, come out and see for yourself. Queens fly from these boxes just as freely as from a full colony, and mate as promptly. I might say that full-sized frames are out of place in a modern queen-mating yard run with the best economy.

Swarthmore, Pa., Dec. 15.

[Mr. Pratt has certainly been up to date, and perhaps even a little ahead of the times, in his methods of rearing queens. I believe it was he who first suggested making the cell-cups under pressure with a suitable die; and while he was not the originator of wooden cell cups, he may have been the first to put them into any thing like extensive use.

Regarding grafting, it may be necessary to paint only the inside of the cups with royal jelly; but whether it is or not, it does not take any longer to put in a drop than it does to smear the inside to give it the proper smell.

There may be an advantage in having the wooden cups with a flange; but as we work, I can see no advantage. Of course, it is possible to pull out a cell on the Pratt plan without lifting a frame; but when one removes the frame he can take a pick of the best; or he can discard those that have been

rejected, and substitute others in their place much quicker than he could pull out the flanged wooden cups one by one to determine which ones of the number have been rejected or were in any way defective.

Mr. Pratt is to be congratulated for so persistently advocating the possibility of queens being fertilized in small nuclei. We have heard from a couple of good breeders who have succeeded with small lots of bees, but not with original nuclei hanging on stakes as Mr. Pratt first described. It was these that some of our subscribers tested; and if friend Pratt could have heard some of their comments, he would not have felt flattered to say the least. But not all good ideas are successful the first time. During the process of evolution there are necessarily more or less changes to be made until success is finally secured.—ED.]

FURIOUS ROBBING.

Prevention Better than Cure; the Porter Bee-escape, and How it may Prevent Trouble and Stings.

BY WM. M'EVROY.

Last season, while driving up a farmer's lane in a locality where the honey-flow had come to a sudden stop about the last of July, I saw the owner of some 60 colonies of bees and his help taking off his crop of honey, and bringing it into a woodshed where the bees were entering almost every part of the building, and in there the extractor was kept moving at a lively rate, and so were the bees and every thing else. The day being extremely warm, and the bees not finding any honey in the fields to gather, they looked well after what the farmer was taking away from them. I had sent the livery horse a long distance away to be tied; but when I saw the raging storm of angry bees robbing and trying to sting every thing that came in sight I dreaded the bees hunting up the horse and causing a runaway, and rig for me to pay for. These fine people kindly offered to get me a veil. I thanked them, and said that I did not need one, as I always protected myself with a good smoker, and had not worn a veil in over 25 years. At last the bees became master of the situation, and put every one out of business.

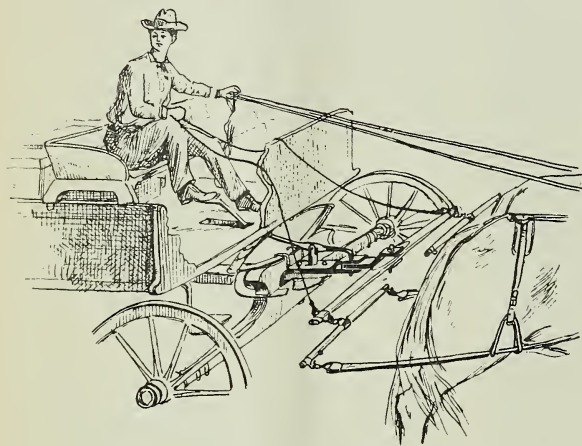
I advised the bee-keeper to get the real Porter bee-escapes, and in the evening to put one under each super; and in the second evening after he would find the bees practically all out of the supers; and then in the evening, when all was quiet, remove all the supers to a good tight room and do the extracting there.

I live right in the center of a village where I keep about 200 colonies; and just as soon as I find the bees inclined to rob I put the Porter bee-escapes under the supers and then take off the supers after the bees have gone down, and don't have any rob-

bing at all. By managing the business this way my bees remain very quiet, and are never troublesome.

Woodburn, Ont., March 12.

[I wish this little item of our friend McEvoy could be pasted in the hat of every beginner bee-keeper. Indeed, I am not sure but I will have it struck off and inclosed with every dozen escapes sent out; and, say—I have been in bee-yards of old veterans who either did not seem to know about the



DULEY'S SAFETY DEVICE IN USE READY FOR EMERGENCY.

trick of keeping bees quiet with escapes, or if they did know it they were so careless as to go ahead and extract just to save time and "do the job up all at once." I grant that sometimes at an outyard one can not wait to put on escapes; and it becomes necessary, therefore, to shake and brush. Even then the extracting-house should be bee-proof, with bee-escapes on it to let stray bees that come in on the combs get out but not in. I do not believe it is wise for even the veterans to let the bees get on a rampage. There are many people nowadays who are anxious to begin a damage suit, and there are plenty of lawyers out of a job who would like to be retained. The old adage, "An ounce of prevention is better than a pound of cure," fits this case exactly.—Ed.]

DULEY'S HANDY SAFETY DEVICE FOR MOVING BEES.

A Good Suggestion.

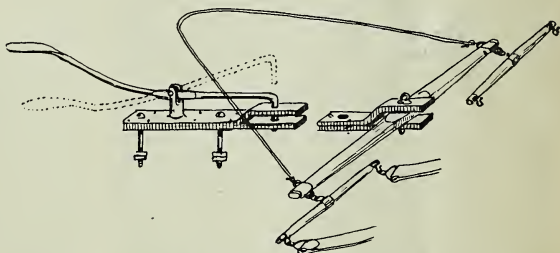
BY G. W. DULEY.

I have a device which I use in hauling bees, of which I send a drawing and description. Take a wagon with breast-yoke;

remove the doubletrees, and in place thereof fasten a clip made of $2\frac{1}{2} \times \frac{1}{4}$ -inch iron in the manner shown, with two half-inch bolts. Now take the other clip with doubletrees and slip into the first clip, and fasten the same with the lever-dog. Leave off stay-chains. The driver sits with his foot on the lever. Should there be any danger he presses down on the lever and lets the team loose from the wagon, and moves away out of danger.

I would never think of hitching a valuable team to a load of bees without this device to let them loose. There is no time to unhitch traces when bees get on a team.

The driver sits with his foot on the lever, and holds the doubletree rope. Should there be any danger, press the lever and release the team from the wagon, and drive out of the way. He holds the double-tree off from the horses' heels by means of a rope. We don't have to stop the team at all—don't have any traces to unhitch; in fact, there is no time for such work. All we have to do is to press the lever. The wagon will sometimes run several feet after the tongue falls to the ground. I have no more fear in hauling a load of bees with this little device than I



DULEY'S SAFETY DEVICE FOR RELEASING TEAM WHEN HAULING BEES.

do a load of corn. I just load the bees on the wagon in any way, and start over these rough roads of Livingston Co. My! You would think the bottom-boards would all be shaken loose. But what do I care? I can get out of the way, just the same.

Smithland, Ky., Feb. 12.

[The drawings are sufficiently clear so that any one can take them to his blacksmith-shop and have an outfit made at comparatively little expense. But instead of having a long slot cut through the floor of the wagon, mutilating it, I would have an upright standard with a pedal piece mounted on top, the standard passing through a $\frac{3}{8}$ -inch hole in the wagon-box at the right point to pivot on the end of the lever. This

will save mutilating the wagon; and if a cotter-pin is used to shove through the holes forming the pivoted joint, the pedal standard can be easily removed.

This device is so excellent that I think it would pay any one who has much hauling of bees to do, to have it put on his wagon. One fracas might pay for several hundred of them. I would put it on any way, as a matter of convenience and the saving of time in hitching and unhitching. Load the wagon up with bees without the horses being hitched to it. When the load is all on, pull the doubletree over; hook it into place; get in, and drive to the outyard. On arrival, unhook the team, drive it off to a point of safety, and unload the bees. As soon as the wagon is empty, push it out of the flying bees by hand, and hook the team on and drive off. The device would be very handy and a time-saver, even when the horses are not being stung. As a means of preventing accident, it would be worth many times its cost.

No doubt some will think that a rope hitched to the ordinary king bolt would be just as good. As I see it, it would not be nearly as efficient. The unhooking with the Duley device is accomplished with the foot, leaving *both* hands free. One hand holds the lines and the other the rope that holds the doubletree. In a real fracas, where the horses are being stung, and they are plunging, the driver would be pretty badly handicapped if he attempted to hold the doubletree off from the horses' heels. If they were rearing, it might be a difficult matter to pull the king-bolt out.

It is the consideration of these little things in bee-yards that makes all the difference between success and failure.—ED.]

GLASS-POST HIVE-STAND.

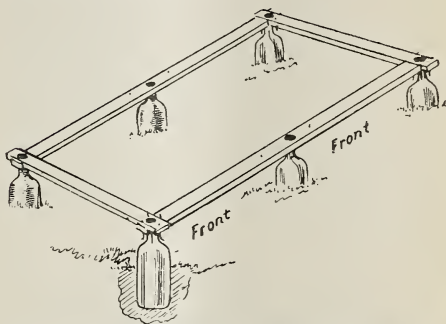
Cheap, Durable, Lasting.

BY DR. J. W. GUYTON.

Our twentieth century demands something new, cheap, and durable in the way of a stand for our hives to rest on. This I offer to the bee-keeping public in the form of bottles for legs. I get the longest quart bottles I can find, and with a hoe I make a set of four or six holes—four holes for one hive and six for two hives. These holes are set at regular distances apart to receive the bodies of the bottles. I set them in about half their length, with the mouths up. The bottles are to be leveled up with a straight board and a spirit-level. Put them in straight rows just where you want your hives to be, and have them face just the way you desire your hives to stand.

Now take some 1×2 stuff and have it smooth and well painted for the hives to rest on. Cut them two or three inches longer than your bottom-boards are wide; or if you want to have a double breaster, cut them long enough to reach clear across

all three bottles. Now drive a four or five penny nail through the timber just over the mouth of the bottles. Leave not less than one-eighth of the head end of the nails up. These are to hold the bottom-board from slipping and sliding about, and the lower parts of the nails will hold the rails on the mouths of the bottles. Hard winds will not slip either rail or hive.

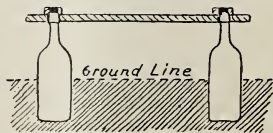


GUYTON'S HIVE-STAND MADE OF OLD BOTTLES FOR GROUND SUPPORT.

Such a hive-stand is very simple, and the glass posts are everlasting so far as decaying is concerned. It can be made very cheap and serviceable as a dual stand or for three hives if preferred. I consider such a stand a most excellent one—so good that I shall adopt it for all of my hives.

If desired, four pieces may be used to constitute the frame-work, and these securely nailed together. Then a longer nail will be required to reach through and down into the necks of the bottles. Such a frame might be necessary where three or four stories are left full of honey for any length of time.

An auger-hole may be made to receive a pin that will fill the mouths of the bottles instead of holding the framework or stand with nails. In this case I would allow a quarter of the pin to stand above to prevent the bottom-board from slipping. Shorter bottles, such as pint beer-bottles, could be used, and bought some cheaper.



SECTIONAL VIEW OF HIVE-STAND.

A long black bottle with a deep recess or sink in the bottom could be used and set up much more easily by taking a wet spell to do the bottle part of the work. The necks could be pushed into the ground up to the shoulder of the bottle, and the concave end used to hold the framework by means of small blocks of wood being cut just the size of the recess in the bottom. These long bottles will hold the hive-bottom up so that

one's feet may be shoved under the hive; besides, they hold the hive up from the ground away from moisture, toads, rats, etc., as well as at a convenient working distance, thereby doing away with so much back-breaking toil.

This stand puts one's second stories and supers up just right so any one can do almost all the day's work in an upright position. It's just the right height for a double-decker queen-nursery. I have been reading the different articles in GLEANINGS on hive-stands, and thought this might be new to some of your readers, and might be of some benefit to some one as a hive-stand, as they are coming to be more and more adopted by apiarists.

Almost any one can pick up bottles enough for a small apiary, free of cost, and can make the stand very cheaply.

Levita, Texas.

STAKES FOR HIVE-STANDS.

Some of their Advantages Set Forth.

BY C. C. PARSONS.

I find on page 392, 1903, that you were favorably impressed with the idea of placing hives on stakes driven into the ground. I notice also, p. 224, 225, Dr. Miller's warning, and his suggestion that clipped queens would not be able to get back, and that it would be inconvenient for loaded bees to enter hives thus arranged.

Before reading these articles I supposed many bee-keepers used stakes to support the hives, and that bee-keepers generally were acquainted with the plan. For more than fifteen years we have used stakes only for hive-stands. I do not know where I got the idea. It may be from some generous apiarist, or it may be that I stumbled over it as I groped in the dark.

We use pitch pine for stakes, and we are careful to have it very pitchy, so that the stakes may not rot. We split them out about $1\frac{1}{2} \times 1\frac{1}{2} \times 18$ in., and drive them into the ground so that the rectangle formed by them as corners is 11×18 inches. The stakes for the front of the hive, when driven and leveled, are 10 inches above ground, and those for the rear are $\frac{1}{2}$ in. higher. Let those who fear that they will not hold up the weight of a hive plant one stake as above, place 200 lbs. on it, and note the result.

I will now give a few reasons for preferring this style of hive-stand. It is cheap. It is applicable to all kinds of surfaces. It is adjustable to any height, to meet the demands of the apiarist. It admits of keeping the yard clean, and a free circulation of air under the hives, thereby preventing early decay, and adding to the comfort of the bees. They stay where you put them.

Now a word about the queens and loaded bees. A runway from the ground to the alighting-board is provided. It may be made of any odd pieces of plank or other

material that may be at hand. We use old iron roofing. Two small nails are driven into the end of the bottom-board, eight inches apart, leaving the ends projecting $\frac{1}{2}$. These are turned up. Two small holes are made in the iron near the edge, and it is hung upon these nails, and the lower end is allowed to rest upon the ground till swarming time. At swarming time a small stick is stuck into the ground near the post or lower end of this runway-board, so as to hold it an inch or two from the ground. The edge of the runway-board should not rest upon the stick, but should project an inch or two. When a swarm issues, the chances for her to enter another hive are few. Dirt has collected upon these stakes near the ground, and it is very hard for the queen to get over it; so when the bees return to their hive the queen is attracted to them, and, very many times, not finding her way into the hive she will climb up one of the stakes which the bees have cleared of its loose dirt, and will be found by the apiarist, when he returns, clustered with the bees on the bottom of the hive, while the toad that would have been blinking at it through a hole in the old box-hive stand is in the garden sitting upon a cabbage, looking for cut-worms. Don't be afraid to tell the children to use stakes.

Bluff Springs, Fla., Mar. 7.

[If the hives do not stand too high from the ground, and the alighting-board reaches from the ground up to the bottom-board, every objection will have been removed. My present belief is that four stakes (or old bottles) are cheaper than any other hive-stand for single hives; and, what is of considerable importance, one can run his toes under the hives when he reaches over to the opposite side to lift out a heavy comb. When one has to stand toe length away from the hives to lift combs he puts that much more strain on the back—a strain which, while not excessive, is very wearing when *continued all day*. A good deal of the work in a bee-yard is stooping, and to some extent "backbreaking," if I may be permitted to use a common hyperbole that is readily understood.—ED.]

ADVANTAGES OF THE FENCE SYSTEM.

The Value of the Outside Fence for Outside Row of Sections.

BY M. P.

I am a boy of 200 lbs., and am just passing my 53d winter. I have kept bees for 24 years, though I never counted them by the thousands, nor even by the hundreds; yet I have been a close observer, and tried many different appliances pertaining to bees and honey.

On page 184 C. H. Dibbern gives some objections to fences, which are contrary and misleading, according to what my experience has taught me. In a footnote to the

above you say: "We want the truth, cut where it may. Let us have reports."

Before the advent of the fence separator I had tried various forms of supers, and finally settled down to the 7-to-foot section without separators, but with four beeways. The theory of this was, with separators each section would be divided off into a compartment by itself, cutting off all communication with the bees in the neighboring section, with the result that the bees were slow in entering the super. Taking away the separator, bees would have freer communication, and enter the super more readily; and opening the section at the side would give them still more communication, and cause them to build their combs straighter.

Now, practice has fully carried out the above theory with me; yet I admit that combs were somewhat irregular, but not to an alarming extent, yet enough so that I was ready to try the fence separator as soon as it made its appearance, with the result that I have adopted them and am using them exclusively, and I never expect to find any thing better.

Mr. Dibbern says: "I have used these fences quite extensively; but with me there is too much trouble with brace-comb; also, in a few years the bees will gnaw the strips and thus leave the combs ribbed." Now, this is all contrary to my experience. Mr. Dibbern may have used them more extensively than I have, but not any longer in succession, and I never had any trouble to speak of with brace-comb. He thinks the trouble with brace-comb is increased in the tall section. Now I am using the five-inch-tall section, and have no more trouble than I had with the slotted separator in a $4\frac{1}{4}$ section.

As to the gnawing of the strips, I will say I have not noticed this in the least in my experience, yet I will admit that I had some combs slightly ribbed—that is, the bees would build a small rib on the comb right opposite the crack in the fence. This, however, was due to overcrowding, and these sections were always too heavy. Bees should never be crowded to this extent for room.

Now as to the slotted separator or fence. I am convinced by actual test that these cracks in the fence are of great importance in giving the bees a freer communication. For several seasons I had only 500 fences, so I would use only 5 fences to the super in about half of my cases, with a thin board on the outside, which, of course, had to be cleated. The other half of the supers were used with fences on the outside as you recommend, with the result that, in nearly every instance, the outside row of sections of those supers that had fences on the outside was well filled and finished, nearly as quickly as the center sections; while those that had only thin boards on the sides were badly filled and slowly capped, and had to be sold at a discount. M. P.

Kalona, Iowa.

[Your experience is in line with other reports we have received from time to time; but we have hesitated about publishing them, as it might be considered we had an ax to grind; but as all the manufacturers are making plain sections and fences now, which was not the case a few years ago, perhaps we may not now be accused of a desire to sharpen the aforesaid ax. If comb-honey producers could only know that in some markets, at least, they could get *better* prices, and in all markets no *lower* a price than for beeway sections, they would find they could not afford to use the old-style section and separators.

But in some localities, and with some strains of bees, there is an occasional difficulty of the kind complained of by friend Dibbern; but even these objectionable features are overbalanced by good ones in the mind of not only Mr. D., but of many others.

The scheme of using an outside fence for the outside row of sections is in line with the perforated separator so persistently advocated by our friend S. T. Pettit, of Ontario. His arguments in favor of such a separator, and the preliminary trials of using an outside fence, were so convincing that we equipped all our supers for the trade with two extra fences. A bee-keeper who would not use a perforated divider or fence for his outside rows, it seems to me is very shortsighted indeed. Suppose he gets a cent a pound more for his outside sections; that would be 8 cents for the super, or \$8.00 for 100 supers. This earning is not very much, it is true; but it is the saving of these pennies that makes the dollars *and the profits*.—ED.]

TROPICAL HONEY-PLANTS.

Their Value for Honey-production.

BY W. K. MORRISON.

It used to be taught, and even now is believed by intelligent persons, that the flowers of the tropics are inconspicuous, and the birds non-singers. Even so able a naturalist as Dr. Alfred Russell Wallace, the justly celebrated evolutionist, and author of famous works on tropical natural history, states in his work on the Amazon region that the tropical regions could not compare favorably with the temperate in the matter of flowers; and not long ago an intelligent English lady who had spent seven or eight years in the tropics said to me, "Oh, my! Mr. Morrison; I don't see how bees can exist out here, as there are no flowers." For an answer I asked her just to look out the door and see the mango, avocado, logwood, golden apple, genip, and other trees in full bloom. "They have eyes to see, but they see not." In point of fact, no pen, however nimble, can do justice to the flowers of the tropics; and I can well remember A. I. Root's astonishment at seeing bougainvillea in full bloom for the first time; and

there are many other flowers equally astonishing.

As is usual in more northern countries, many of the fruit-trees are excellent nectar-bearers, but some are not. That magnificent fruit, the sour-sop, and its relatives the sugar-apple, cherimoyer, and custard-apple do not produce nectar, neither does the bread-fruit family. But we bee-keepers have no reason to complain of Dame Nature in the tropics, for she has been lavish to excess.

The avocado pear, which is not a pear at all, is one of the best producers of really good honey; and when this fruit comes to be grown on a large scale, as it deserves to be, it will cut a great figure in tropical bee-keeping.

The golden apple (*Spondias dulcis*) is a first-class honey-producer, quite equal to basswood or any other northern tree. This is a fruit that would probably cut a great figure with fruit-evaporators and canning-factories. It certainly has a "future" before it in Cuba and the south of Florida.

Malacca apple, pomerosa, or pomme-er-ae, is a great tree for the bees, and no mistake. They can't get at it too early in the morning or too late in the evening. Americans generally regard the fruit more as a vegetable than a fruit, resembling a radish in taste and texture. As it blooms two or three times a year it is very valuable to us. It is probably as valuable to pig-raisers as it is to bee-keepers.

The tamarind is one of the great trees of the tropics, furnishing the famous tamarind syrup of the drugstores. It is a fine large umbrageous tree, valuable in various ways. Its wood is somewhat like basswood; and if as common as the latter is in Wisconsin it would cut quite a figure in West-Indian bee culture.

Cocconut (*Cocos nucifera*). I have already alluded in another contribution to the value of this great tree to tropical apiculturists. It is almost impossible to overstate the value of this nut to the agriculture of the tropics, bee-keeping included.

Date (*Phoenix dactylifera*) is, strictly speaking, semi-tropical, but will grow in drouthy tropical countries. It is extra valuable to the bee-master.

Coffee is a fine honey-plant, but labors under the serious drawback of blooming only one or two days. However, where coffee is grown at different elevations in the same valley its period is prolonged. The flowers are exquisitely white, and borne in profusion. The Liberian coffee does as well as the Arabian.

Nutmeg is not a nut at all, but a fruit bearing a great resemblance to the peach. The nut, so called, is the kernel, and the mace surrounds it. The fleshy part of the fruit is not esteemed in the West Indies, yet it makes a good preserve, American fashion, and makes good pies or dumplings. In a nutmeg-grove trees may be found in bloom any day in the year, and the bees work on it from morn till eve; hence any locality

where this tree is common must be a good one for bees. In Grenada there are several fine large groves of nutmegs. One in particular, the Wells estate, is very fine; and during the life of its owner, who was a bee-keeper, it must have furnished a lot of fine honey.

Genip (*Melicocce bijuga*), a fruit-tree, is a very heavy honey-bearer. In Jamaica, where it is common, it forms one of the chief assets of the bee-keepers.

Hog plum (*Spondias lutea*) is a first-class honey-plant.

Maiden plum (*Comocladia integrifolia*) is also a good honey-plant.

Mango (*Mangifera Indica*). This great fruit does not stand very high with me as a honey-plant; but it may be better in some localities than others.

Sapodilla. This very nice fruit is produced on a large spreading tree like a live-oak. It is a very fair honey-yielder. In the island of Curacao I found these fruits rather larger and finer than elsewhere in the West Indies; and, what is most important, cheaper, three large ones for a Dutch cent, equal to one-fifth of an American copper. There may be a hint here to grow this very plain-looking but sweet fruit.

Loquat. This is a first rate honey-bearer, and seems to bloom when nothing else does. It seems to me the Florida orange-growers north of the "frost-line" might grow this acid fruit for canning purposes. It is certainly well suited for this use; and taking this with its honey-producing qualities we ought to hear more about it later.

Sugar-cane—not a fruit exactly, but well known to everybody. The "arrow," or flower, seems to furnish both pollen and nectar, and the cut cane exudes nectar, which the bees eagerly collect.

Rose-apple, or pomme-rose (*Eugenia jambos*), is a good yielder, but never common.

Clammy cherry (*Cordia collococca*) is good. Bastard cherry (*Ehretica tinifolia*) is also good.

Barbados cherry (*Malpighia glabra*) is a good honey-plant.

Chocho, christophine, or chayote (*Sechium edule*) is both a fruit and a vegetable, and an excellent bee-plant. Southern readers should keep their eye on this plant.

Raspberry (*Rubres rosafolius*). In some islands, at an elevation, very good wild red raspberries are found, and these the bees work on while in bloom. Curiously enough, in the French-speaking islands it is termed a *strawberry* in the Creole patois.

Seaside grape (*Caccoloba uvifera*). This is not a grape, by any means, but it is a very fair honey-producer. The honey of this tree looks and tastes like that from basswood.

Among the forest-trees of the tropics there is no end to the nectar-yielders; but neither myself nor any other person or legion of observers could in a generation even approximately tabulate them. I have seen many that are not mentioned here, for the reason I did not know their names, and

probably they have no name as yet; but their number is legion. It may be asked, if nectar-yielders are so common in the tropics, why do we not secure immense yields? During the greater part of the year it rains so incessantly as to prevent the bees from getting sufficient for their actual wants, and with a warm temperature their wants are great; hence feeding is sometimes necessary. When the dry season arrives, however, the tables are turned; and with the forest one vast mass of flowers it literally rains honey. It must not be supposed that, because there are no bee-keepers, there are no bees. On the contrary, stingless bees in countless numbers people the forests and fertilize the seed; and as they resist wet-weather conditions better, they hold the field. If the torrid zone ever becomes a great honey region it will be by domesticating one or more of the stingless bees inhabiting the region. He will be no amateur bee-man who effects the conquest, and his name will appear on the list of immortals high above Reaumur, Huber, Langstroth, and Dzierzon; for if we consider the extraordinary extent of the tropics it will be evident that the production of honey might be fabulous in amount. However, this much does appear; and it is a matter for the greatest jubilation that many of the most celebrated tropical forest-trees are really large nectar-yielders, excelling the finest trees of the temperate zone.



THE CHARACTERISTICS OF BISULPHIDE OF CARBON; HOW TO BURN BRIMSTONE IN FUMIGATING COMBS.

On page 179 we notice you say you can not detect fumes (sulphur) from bisulphide of carbon. Just take a spoonful and pour it in a teasaucer. Take a match and light it, and hold it about an inch over the bisulphide of carbon. It will take fire something like gasoline. The fumes will be of sulphur. Bisulphide of carbon is half pure sulphur, the rest is carbon. I think the bisulphide would run an auto, but of course the sulphur would be detrimental to the ironwork of the machine. We used bisulphide of carbon years ago for brimstoning honey, in the same way sulphur is used, by burning. We now prefer the brimstone. Brimstone is much cheaper. The only reason we used bisulphide was on account of its being so easily lighted. We can now set brimstone afire and it will burn till all is consumed. If you try to set it on fire in an earthen or iron vessel with simply a

match it will go out every time, for the reason the iron conveys the heat away so fast.

To burn stick brimstone with only the aid of a match, take a board about 7 in. square and nail on a rim $\frac{7}{8}$ all around, so as to make a sort of shallow dish. Now set it on fire on the dish side. This can be done with kerosene. After it has burned some time, so as to char it, the fire must be put out. Lay away till cold. The dish is now ready. Take common stick brimstone and break it into pieces about the size of walnuts. Brush some of the small fine pieces to the middle. Take a piece in the hand. Hold it near the dish over the small fine pieces. Take a match and strike a light, holding it under the piece you have in your hand. The sulphur will melt and drop on to the pile of small pieces of brimstone, and will be alight. Build the larger pieces of brimstone around this so the heat will melt them. The brimstone will all burn up. The board will last for several burnings. I used one an entire season, and have it yet. Set the board, of course, inside of a pan or kettle. Try this if you have any brimstone.

F. A. SALISBURY.

Syracuse, N. Y., Feb. 18.

[The name shows that sulphur is one of the elements. When I said I had not detected the peculiar penetrating odor that is so painful, I had reference to the fumes that arise from it by natural evaporation when no heat is applied. Yes, I believe it would run an explosion motor, without any doubt, and would be much more powerful than gasoline. Yes, the brimstone would be cheaper, and certainly safer.—Ed.]

HONEY FROM AN OPIUM-PLANT; WOULD IT BE POISONOUS?

As a beginner I branched out last year in bee culture. I all at once realized there were not enough of the wild or natural honey-producing plants to support more than 30 or 40 colonies to advantage. Having increased the number to 100 colonies I got almost no honey. By chance I had a small square of poppy-plants in my yard. I found the bees would gather around the blossoms in very large numbers. It seems to yield quite a lot of nectar, and they work on it for about three hours in the early morning, so I gathered enough seed to sow one acre this season. It being an opium-plant I was afraid to plant it until I could write to some one as to whether the honey gathered from these plants is poison or not. I wrote to our State Entomologist, and he refers me to you.

J. A. LEONARD.

Albany, Ga., April 16.

[I am not prepared to say whether the honey would take on the peculiar poisonous properties of the plant or not; but I know this, that it is a common thing to put stands of bees near large fields of seed onions. When the honey is first gathered it has a very strong onion flavor, and nobody would buy it; but after it is fully ripened the bad

flavor has all disappeared. There are quite a number of other plants that yield honey of a peculiar flavor—that is, if it is extracted before it is sealed over. If the bees are allowed to ripen it and cap it over, all this bad taste or smell disappears. I would caution you, however, not to expect very much honey from only one acre of plants. It may do very well for an experiment, but I am sure it will not pay cost. If I am correct, there is no honey-plant known that will pay to grow for honey alone. A good many times certain persons have thought they had got hold of such a plant—catnip for instance; but it has proved to be a mistake. But such plants as catnip, that will grow without cultivation or care, would be more likely to pay; but any piece of ground that would grow profitable honey-plants would grow grass or grain; and the quantity you would secure is so small it would hardly compare in value with the grass or grain. I should be very glad to hear the result of your experiment if you go on with it.—A. I. R.]

ROLL HONEY.

I discard the name "bag honey," and adopt "roll honey," just the same as we speak of a "roll of butter." I am eagerly watching your column on roll honey. For this wet climate I think the freezing has got to be brought into use. In this locality you could not sell a 10-lb. bag—1 lb., and 1 lb. only, will have to be the ticket. When peeled, and placed on a dish, it is indeed "a tempting dish." But I have yet to master the granulated question before I can succeed.

FAIRY SHELLS.

At our flower show we took a tin of granulated honey and ice-cream biscuit chips. These we filled with less than 1 oz. of honey, and just put a label on. The honey held it down. One cent each as fast as you please.

Long Eaton, Eng.

J. GRAY.

FRAMES SUPPORTED ON NAILS.

On pages 1043, '4, you ask about frames supported by nails. For more than 14 years the supports of all frames in my apiary of 70 hives are eight-penny nails of No. 8 wire finishing nails. I tried at first 6's, but found them too slender; No. 7 or 8 wire driven in the end of the bar $\frac{1}{4}$ inch below the upper surface, head within $\frac{1}{8}$ or $\frac{1}{4}$ inch of the hive; you can shove all from side to side with one finger. No need of staples. I use your frames, but saw the ends off and remove the staples.

JAMES CORMAC.

Des Moines, Ia.

THE RELATIVE WINTER TEMPERATURE OF COLORADO AND WISCONSIN.

I see in your issue for Apr. 1 you say (in commenting on how bees have wintered) that it is as cold or colder in Idaho and Colora-

do than it is in the lake region. I think you surely have got a wrong impression in this matter. I will admit that I do not know much about the climate of Idaho, but I do know they ship each year more peaches, pears, prunes, and apricots from Idaho than were ever raised in Wisconsin. This could not be if it were colder than Wisconsin.

With regard to Colorado, I feel sure that the mercury has been below zero more times during the past winter in Wisconsin and Michigan than it has in the western and southern parts of Colorado during the past ten years, where it seldom goes below zero.

It is somewhat colder in Northern Colorado; but at this point, 40 miles north of Denver, the coldest the past winter was 2 above zero, and that on only two occasions; besides, the sun shone almost continuously all winter, and bees flew perhaps twenty days each out of the three coldest months.

Our climate is warmer in winter and cooler in summer, so there is only two to four degrees difference between Chicago and Denver (this is mean temperature for the whole year); but the difference in humidity makes Denver much the better climate.

I think you pointed out the true cause in winter loss when you spoke of the dampness having a worse effect upon the bee than the low temperature.

Here I have seen bees carrying pollen and honey at 47° of temperature, while in Wisconsin or Michigan they will scarcely fly at less than 52 above.

M. A. GILL.

Longmont, Col.

[When I was in Colorado one late fall the temperature went below zero several times. Notwithstanding it did so I did not feel the cold. In the item to which you refer I may have been misinformed as to the actual cold in the State; but the fact I was trying to emphasize was that it might be actually colder in Colorado or Idaho than in the lake regions hereabout; but if that temperature was a *dry* cold the bees would not begin to suffer as much; that *humidity* plus cold was what kills the bees.—Ed.]

FROM 34 TO 50, AND 5000 LBS. HONEY.

Last spring we had 34 colonies of bees in eight frame L. hives; we increased to 50 colonies, and took 5000 lbs. of first-class extracted honey from clover and basswood. This is an average of about 147 lbs. per hive. We fed about 200 lbs. of sugar in the fall. There was more than 50,000 lbs. of honey taken within five miles of us. I run a sawmill and planer, and make my own hives, and supply some of my neighboring bee-keepers too.

Extracted honey sold here at 6 to 7 cents per lb. wholesale, and retailed at 9 to 10.

We enjoy your Home papers very much, and feel sure you would enjoy a run on your automobile through this part of Ontario, and we should feel highly honored by a visit from A. I. Root this coming summer.

Falkirk, Ont.

W. H. WESTCOTT.

THE BARBER METHOD OF WINTERING.

I live only 38 miles from Ira Barber, and am very much interested in the perfect wintering of bees. I am not satisfied with my wintering. I have too many dead bees. I think you are able to help very many beekeepers, and see you realize the importance of this subject; and if you could only see bees wintered with no ventilation as well as bees wintered with that very large ventilator you have, and Bingham's cistern cellar with large ventilator, you will be able to draw conclusions that may be of no small value. Mr. Barber's idea of no fresh air, regardless of the usual rise in temperature in closed cellars in the latter part of winter, seems to be at variance with most beekeepers; still, he may be right. It seems to me there is some reason why his bees are quiet when the temperature rises at the top of his bee cellar to 56, as my cellar now is. He speaks about bees coming out of the fly-hole when it gets too warm to stay inside, then back again when it is cooler. Does this fly-hole he puts in his hives account for his success? The warmest part of the hive is above the bottom, so they could get rid of foul air easier through the fly-hole, perhaps. If the foul air could escape so easily without losing necessary heat, might not the bees remain in better condition in a warm cellar? There is 12 degrees' difference in the temperature of my bee cellar to-

day. One end is 1½ ft. lower than the other; and 1½ ft. from the bottom of this it is 12 degrees lower than at the top of the other end. The higher end or part has many more dead bees than the other, which has very few. I hope you can see some bee-cellars in Mr. Barber's neighborhood this spring before the bees are set out.

F. C. HUTCHINS.

Massena Springs, N. Y., Feb. 15.

[My articles on cellar wintering in May 1st issue may help you to solve some of the conflicting ideas. I judge Mr. Barber's cellar does not go below 40. If it did he would have trouble if the temperature kept down for weeks at a time.—ED.]

NEW FUEL FOR SMOKERS.

Some of the Cuban bee-keepers have made the discovery of an excellent and very cheap fuel for smokers in these climates; namely, the dried-up and old leaves of the bannan-plant, which, when used in the smoker, make a very pungent and thick smoke which the bees do not like at all, and it has the effect of subduing the very cross est bees with a few puffs. As a good many of the yards are placed here in the shade of the bannans, it is a constant and never-failing supply of good material, and always at hand.

L. MACLEAN DE BEERS.

Havana, Cuba, April 20.



A GLIMPSE OF THE WILD RASPBERRY AS IT IS SEEN OVER THOUSANDS OF ACRES IN NORTHERN MICHIGAN, WHERE THE PINE TIMBER HAS BEEN REMOVED AND THE GROUND LEFT VACANT.

TO GET RID OF ANTS.

I should like to ask what will drive away ants from hives. I have a few hives that are bothered some with them.

Stuttgart, Ark.

EARL RHODES.

[The most satisfactory way to get rid of ants is to hunt up the nests, make holes in them with a crowbar, and drop into each hole so made about a tablespoonful of bisulphide of carbon. Cover the holes up immediately with plugs of earth. The gas arising will penetrate all the galleries of the nests, and destroy the ants. You can buy the bisulphide of carbon at the drugstore. But bear in mind it is very explosive, and must be kept away from a lighted flame or a stove. Enough gas can be generated to blow up a house, and I would advise you to keep it in some outbuilding where it will do no particular damage. By hunting up the ant-hills and destroying the nests as described, you will, to a great extent, mitigate the nuisance.—Ed.]

A TWO-YEAR-OLD CHILD STUNG TO DEATH.

The two-year-old son of Mr. and Mrs. F. W. Metcalf, of Arcadia, Ore., was stung some forty or fifty times by bees, and died in less than 30 minutes from the effects. Now, is there any thing one can do in such a case as this? The child disturbed the hive with a switch, as he had one in his hand when found near the bees unconscious.

The child was heard to scream, and a man went to him at once. This happened half a mile from our bee-ranch at Arcadia.

Ontario, Ore.

PENNINGTON BROS.

[Cases of this kind are exceedingly rare; and even where death does occur, the subject is usually more susceptible to the effects of the poison than the average person. I believe this child could have been saved if cloths wrung out of water as hot as could be borne had been wrapped around it and renewed every minute or two. Even cold applications seem to bring relief.—Ed.]

PREVENTING AFTER-SWARMS.

Last year I had several after-swarms, and I want to prevent after-swarming if there is a way to do it. Is it all right to let bees swarm one time? The idea I have is this: When the first swarm comes out, open the hive that the swarm came out of, and cut out all the queen-cells but one.

Ephesus, N. C.

S. S. FOSTER.

[The plan of cutting out all the queen-cells but one has been practiced to a considerable extent to prevent after-swarms, and in the majority of cases it works very well; but it sometimes fails, nevertheless. It is usually better to move the parent hive on to another stand at the time the swarm comes out, hiving the swarm in another hive with frames of foundation put in the old location.—Ed.]



TROUT-BROOK SCENE NEAR RAPID CITY, KALKASKA CO., MICH.



WILD RASPBERRY OF NORTHERN MICHIGAN AS A HONEY-PLANT.

At the recent convention in Traverse City (see page 389, April 15) there was quite a little discussion in regard to raspberry honey and the location of apiaries in that region. I have mentioned the wild raspberry around our cabin in the woods, in Leelanau Co., Michigan. When the berries are ripe, crowds of people go out from Traverse City for miles to gather the luscious fruit; and when it is dead ripe in localities where none has been picked (and there are acres and acres of such), as you go along through the bushes the plump luscious berries dropping on the leaves underneath make a continuous rattle. The fruit season lasts so long that delicious berries may be gathered from the time they first ripen in July clear on till October, but, of course, not so plentifully as cold weather approaches. The blossoms commence yielding honey in June, and there is more or less bloom from that on till frost. The quality of the honey I should pronounce equal to any thing we have in the market. It is near the quality of white clover, candies solid at the approach of cold weather, so it will be exactly right for selling in paper bags or for cutting up into squares. Large bee-keepers are now planning for out-apiaries where these red raspberries most abound. I believe there is very seldom a failure in the honey crop; and as much of the land seems to be of but little value for any thing else where the native pine timber has been removed for lumber, there is a probability that this source of honey will last for many years to come. As this region is a favorite resort for summer outing, I think it is well worth while to make an excursion in that direction during the summer months. If the beautiful air among the hills and bays and springs and rivers does not recruit your health, a diet of raspberries and bread and butter will do it. I ate them week after week, not only at meals, but all through the day when tired and thirsty; and instead of doing harm they just made me well and strong.

A GLIMPSE OF ONE OF THE TROUT-BROOKS IN NORTHERN MICHIGAN.

The picture was given me at the Traverse City bee-keepers' convention. I have thought best to give it here as it shows something of the beauty of the spring-water brooks that are found all over Northern Michigan. The picture also gives us some idea of the water power going to waste. There are enough of these brooks with a magnificent fall to run electric cars all over that region, and to light all the cities and villages besides. These brooks are all clear spring water, and are never-failing;

therefore they would be unlike many of the water powers further south that run a full volume only during the springtime or when there are heavy rains. No one can describe adequately the crystal clearness of these brooks. I have before mentioned that, along the dock near the bay, close to our northern home, fish can be plainly seen in water that is 16 feet deep; and these brooks are clearer and purer than the water in the bay. Just imagine how a lot of urchins would enjoy playing around a place like that on a hot July day! I should think they would be doffing their clothes and getting under the sprays. Perhaps that is what they have been doing, as they are a remarkably clean set of boys. Between two of them you can see a sample of some of the beautiful evergreens that grow spontaneously in that region. At the left-hand corner of the picture you will see another group of these evergreens. There is quite a variety of pine, spruce, and cedar, and these are usually interspersed with deciduous trees, making a very pretty contrast. These trout-brooks are to be found all around the region where wild raspberries grow.

Now, it is getting away from my subject; but while you take a look at these boys, and consider the harmless amusement of picking wild raspberries, drinking to their fill from the brooks of the soft-water springs, taking a bath when they feel like it under the waterfalls, then think of the saloon-keeper who takes young boys—boys who, in the absence of these saloon-keepers, might grow up to be good and pure—think of the saloon-keeper who leads them into obscenity, filth, and ruin, just because he can thereby get a little money out of it! Here in Ohio we have just had a fierce fight for the privilege of letting the fathers and mothers decide whether they want these places of iniquity around the towns and villages, and in the residence portions of our cities or not. We temperance people simply asked that the *majority* might rule. The saloon keepers and brewers hotly declare, "No, sir, the majority *shall not* rule so long as it interferes with *our* business." And the Governor of the beautiful State of Ohio stood by the brewers, and helped them to a partial victory. But we have not done with him yet.

There, there is one thing in that picture I never noticed until I had come to the close. One of the boys has a fish-net in his hand, so they are going to have some beautiful fresh fish besides the raspberries, the spring water, the luxurious bathing, etc.

FOUNDATION OR EMPTY COMBS.

Is it advisable to have swarms on combs that were built last year, or would you use only starters of foundation? I have plenty of combs in good condition.

Wirtz, Va.

G. J. BLANKENSHIP.

[Use whatever you have, ordinarily. To prevent swarming, foundation is to be preferred.—ED.]



WHOM HE LOVETH HE CHASTENETH.

The writer of the letter below did not intend it for publication; in fact, he says so; but if I am correct he will not object, especially when I think it should be in print:

Dear Sir and Brother:—I am glad to see by your last Home talk that some were stirred up to write to you about your sermon (?) in the preceding issue. I felt that I ought to also, but put it off till now. To begin with, there are a good many things that I admire in your talks, and I think you take correction and reproof in a good spirit, else I would not write this letter; but it seems a shame for a Christian to call sickness a blessing. You speak of being "forced" to give up your ways by failing health. What kind of submission is that? It seems to me a good deal like the man who was "blessed" by being sent to the penitentiary. Of course, it was a blessing; but what a shame to be sent that way! Don't you know that great big healthy men can have such a spirit of love that they can be gentle and kind all the time, and meek? also "clothed with humility"? They are rare, I sadly confess; but Jesus said, "Few there be that find it." On the sad state of the world, when to love Jesus seems incompatible with strong sturdy health of body and mind! Had I "the pen of a ready writer" I would write a book on this.

Then it seems that in your talks there is so much of the spirit of A. I. R. and so little of the spirit of Jesus. I don't want to bear on too hard; but with what complacency you speak of eminent doctors and trained nurses, etc., as if these were available to the great majority of mankind! I fear that, to most of them, they are as impossible as automobiles. I know some of your readers who are struggling hard for bread and butter and shoes for their children, who are away back where your father and mother were when you were a little child. I do wish you would tell your readers that God is a present help in trouble; that Jesus is always within call. It seems so sensible to commit our care to him first of all, and then do as he directs. "My sheep know my voice." But do you keep your own spiritual affairs "up to date"? In some way you give me the impression that your work for God is merely incidental or secondary; that your business is uppermost in your heart and mind, and that that comes first; that you think more of making money than of saving souls. I hope it is not so. Did you ever think what an awful thing it would be if you should miss heaven? May God grant you and your dear wife an abundant entrance into the kingdom. If I have seemed to be harsh, let me assure you that the worst wish I have for you is that the Lord will say of you, "This is one of my dear children in whom I am well pleased."

I have not written this for publication; but I am sure these words will condemn me in the judgment if I fail to live soberly and righteously in this present evil world. I wish, were it God's will, that we might "speak with naked hearts together." I am not a Dowieite, but just a plain Christian; and about the only means of grace I have are the Bible and prayer.

Yours in hope of attaining to the resurrection of the dead,
W. S. GARDNER.

Bellaire, Mich., April 25.

Many thanks for your opening sentence. May God help me to merit what you say about my taking reproof in a good spirit, etc. There may be those who feel they can speak with authority as Jesus spoke; but I am not one of that kind. Of course, there are different opinions about sickness being a blessing. Our pastor, in his sermon last Sunday, seemed to take ground that it is not God's will that we should be sick; but he agreed with me, but a few days before, that the *Sunday School Times* is about as orthodox, and about as good authority on difficult questions pertaining to the Bible,

as any in our land. Why, my good friend G., I recall vividly one man who was not only blessed by being sent to prison, but through him the whole human family have received a blessing. I refer to John Bunyan. He probably would not have written what he did had he not been confined, and probably for something of which he was entirely innocent. It certainly was a shame that so good a man should be punished in that way; but thereby and through him God blessed the world. When I said that my plans in life were broken up by poor health I did not mean that I was at the time after the almighty dollar, and might have been there yet. When I spoke of expensive city doctors and trained nurses I did not mean to advise everybody to follow that fashion; in fact, I gave our experience in the matter at considerable length because I did not feel satisfied that expensive doctors and nurses are very much better than the ordinary family physician in the country, with a nurse not beyond the means of the day laborer. Mrs. Root insists even now (of course she does not *know* positively) that, in her opinion, she would have got along just as well with a Medina doctor and an ordinarily skillful nurse. Yes, she and I have talked the matter over a great many times, and she has even suggested she *might* have come through it all right with good care and *no* physician at all.

I suppose, friend G., there are thousands of people besides the Dowieites who claim that a physician does not help very much aside from deciding that the patient shall have a competent nurse, and that all well-accepted sanitary rules be observed. But this is a serious matter. Do you dare tell me, dear brother, that, if your wife and children were near to death, you would let them die without calling a physician? Mrs. Root objected vehemently to physicians and nurses both; but her children overruled her, and they would have overruled me also had I sided with her. Now, a grave question confronts us right here: Shall we let the dear wife or children die because we are too poor in this world's goods to employ a doctor? I think I can remember a few cases where good people have been allowed to die just because the relatives thought they could not *afford* a doctor. If we were really *sure* the doctor would save the patient, and that the patient would die without the doctor, we could mortgage our property, or go among our friends and beg on bended knees for the wherewith to save the life of the dear one.

There are a good many hard things said about our doctors; but, dear friends, let us all remember the doctor is the only man in the community who is expected to work day and night to save the lives of poor people, and that, too, without pay, providing they are unable to pay. Yes, he is even expected to furnish costly medicines when, in his opinion, it will save life; and I am sure there are hundreds of physicians who work as hard where there is no probability they

will ever get a copper in payment, as for their wealthiest customers. Of course, this is within the bounds of reason. When a physician is told to spare no expense in the effort to save life, of course he orders many things he would not be expected to order under other circumstances. I am not only working but praying for wisdom in this very matter; and with all the light I can gather up, my opinion is that our safest course, as a rule, is to follow the advice of our family physician.

You are right, my good friend. I was born in a log house, and my parents were poor; but when the family doctor said there was very little chance of life when I was only two years old, my parents, poor as they were, called a counsel of two other neighboring physicians. One of these doctors said later that it was not their medicine that pulled me back from the grave so much as it was my mother's prayers; so you see it would be the most natural thing in the world for me to believe in praying for the sick.

Dear friend, I have been trying to assure mankind that God *is* a present help in trouble; and I am trying hard to keep my spiritual affairs "up-to-date." So far as making money is concerned, I think I can say truthfully that I am not at present at work at any thing to make money. I am here in the factory a part of every day to give such counsel and assistance as I can give; but I have no employment on my hands for making money directly. Most of the time I keep busy by making suggestions and adjustments so that somebody's work will be easier than it has been heretofore. The thought is expressed beautifully in some kind words that came on a postal card, which I submit below:

My dear Sir:—GLEANINGS for April 1, the very last paragraph as to keeping machinery in repair—that's a grand word you have there: "I forget all about being tired; and then I do really enjoy helping the world along by repairing or making adjustments, so that somebody's work is easier than it has been heretofore." Amen, friend Root. I almost think the whole duty of man is summed up there. Do you remember that other grand word of that grand world's man Carlyle? "There is in man a higher than love of happiness; he can do without happiness, and instead thereof find blessedness." The revelation of my duty that comes to me often incites me to preaching publicly, and stirring up faith and righteous effort in others; and such duty, undertaken often in a woeful sense of weakness and even utter collapse, does bring its due reward of contentment and blessedness; but far more of my life this past twenty years has been spent (outside of the struggle to provide things honest for daily existence) in that same work of repairs and adjustments for others. It is often thankless work; there is little glory attached to it, but there is great blessedness.

GEORGE ROSE.

The good brother who sends this card did not give his address; but by looking him up I find he is a nurseryman and florist as well as a bee keeper, at No. 50 Great Charlotte St., Liverpool, England. I wonder if all florists are good men. They certainly ought to be.

In regard to missing heaven, I hope you will not think I am insincere when I say that I have not been concerned so much of late years about missing heaven *myself* as

I have for fear that some others whom I have tried to lead from earth to heaven should finally miss that goal. I do not think your letter harsh nor unkind at all; and I thank you for the great compliment you pay me in your concluding words. May God lead us both into all truth.

And now I want to submit a letter from another brother. We may not be able to indorse all he says; but nevertheless he gives us some valuable suggestions—suggestions that I think are in line with the present trend of this matter of the prevention and cure of disease:

A WORD ABOUT HEALTH.

God talked with Moses in an audible voice as one man talks to another. He gave some health talks. I do not eat any of those things he forbade. I think he knew what is healthy. For me to eat what is unhealthy is to insult God. Statistics tell us that of every 1000 gentiles born, one-half will die before 40 years of age. Of 1000 Jews born, one-half will live to be 71 years of age. Our drug doctors *try to cure*, but do very little to prevent people from getting sick. Our God is not so short-sighted as to write a book telling how to cure. He writes directions how to live so that this sickness will be unknown. A. I. R., we are a stiff-necked lot. When one is started in life wrong it is hard work to get him wholly right at once. Olive oil is one of the best remedies known. It is now a fad with doctors to cut for appendicitis. Those who do not cut out the appendix, but have the patient fast, using a pint or more of olive oil internally and externally, with proper hot and cold water remedies, cure more of their patients than those who cut them open.

Constipation is dangerous, because it poisons the whole system. I know, for I have been there. I have used a syringe and water, but have no use or need of the syringe now. How can one cure himself? Well, listen. I know a person, now 87 years old, who was born constipated. He had to use a syringe and water for years. He got so constipated that the best drug doctors of Los Angeles gave him up. They did all they could with drugs, and at this stage he was about to drop into the grave. Another doctor took his case who uses "suggestion" as a means of cure, together with massage, water, breathing, etc. Well, he cured him. He had to turn over a new leaf in the first place, and eat proper food. Then one must use his *mind* or *will*, or, as this doctor calls it, "suggest on," or as I would call it, pray that your bowels might move, and try to move them as you might try to move your hand or foot. It is the right thing to ask God to help you, for "in him you live and move." This doctor worked. I might say pounded, his liver till he could feel and hear the bile slop about. He says "suggestion" is the foundation of "Christian science," but he teaches how to keep well after you are cured. In either case you must have some "faith."

Now you know, Bro. Root, if you are posted, that thousands of our Catholic brethren, by making a pilgrimage to some shrine to bathe, or touch the bones of some dead saint, are cured of their disease. It is "faith" that does the cure. Electropoise, oxydonor, etc., are worthless, but faith is a valuable asset.

I can not see any science in "Christian science," but I believe in prayer; and that the prayer of any one, together with faith, will cure many cases, no matter whether the person is a Catholic, a Christian Scientist, a Theosophist, or a *Congregationalist*. Those who use suggestion as a cure admit it to be a prayer, even though not begun nor closed in the orthodox fashion. Alexander Dowie is far from being infallible. He is human. The world hates him because he is so rough, and hacks into its weak and sore spots so as to hurt. His prayers, and faith on the part of the ones prayed for, effect cures.

There are many strange things we do not understand. Many of our ablest scientists now "admit that a thought is something that can be weighed and measured," and it can travel fast without any wires. It can be sent to God. You pray for your friend or child who is far distant, and it is sure to go where sent.

By a little practice you can move a light line with a plumb, if it hangs near, by just concentrating your mind on it—make it swing east and west, or north and south, or in a circle.

W. E. LITTLE.

Perris, Cal.

Dear brother, I hope you are right, and that appendicitis can be prevented. But let me give you a little of our experience. Our boy Huber, now almost 21, while attending school was subject to strange attacks that sometimes laid him up for several days. He consulted physicians of different schools, and the final decision all around seemed to be it was appendicitis, and that he would have to submit to an operation. The attacks were becoming more frequent and more severe until he had one that made us despair of his life. Our family physician said if Huber recovered from that, just as soon as he was well and strong he should go to Cleveland and have an operation performed—that another attack, in fact, might cost him his life. Before doing this we consulted the best physicians in the great city of Cleveland. There seemed to be a general agreement. The operation was successful; and then came before me an important point: If all these doctors were right, the peculiar symptoms of his trouble would be entirely at an end. Almost two years have passed, and he has never felt the least symptom of anything of the kind. I think I have read in the papers that about 90 per cent of the operations for appendicitis, when taken in time, are successful. Of course, there are many, and some physicians among them, who have some other remedy, and who say hard things about the doctors who advise an operation. So there are people and even physicians who object to vaccination. I am greatly interested in what you say about "suggestion," and I am satisfied a great field for alleviating human suffering is just now opening up, right along in this line; but I am not prepared to go as far as you do in your closing sentence about mind operating directly on matter. I know this statement has been in the papers and in some books; but I am ready to give \$100 for the man who can move a plumbline as you describe, by the mere effort of his will. I should want to put up the apparatus, however, and have the experiment performed on my own premises. Influencing one's digestive apparatus by the power of his will is a different thing from causing an inanimate object to move by that same will. Perhaps we are getting a little off from the line of our text; but notwithstanding all that has been said in the above, I for one am convinced that God often shows his wondrous love by sending us some aches and pains that seem very hard to bear. A good parent reproves, corrects, and even makes his child suffer pain, of some sort, because he loves him *so much*, and *not* because he does not love him *enough*.

Temperance.

"UNCLE SAM SAYS IT IS ALL RIGHT."

Somebody has sent us a clipping of an advertisement from a home paper called the *Home (?) Queen*. Here it is:

UNCLE SAM SAYS IT IS ALL RIGHT.

Uncle Sam, in the person of ten of his government officials, is always in charge of every department of our distillery. During the entire process of distillation, after the whisky is stored in barrels in our warehouses, during the seven years it remains there, from the very grain we buy to the whisky you get, Uncle Sam is constantly on the watch. We dare not take a gallon of our own whisky from our own warehouse unless he says it's all right. And when he does say so, that whisky goes direct to you, with all its original strength, richness, and flavor, carrying a United States Registered Distiller's Guarantee of Purity and Age, and saving the dealers' enormous profits. That's why our whisky is the best for medicinal purposes. That's why it is preferred for other uses. That's why we have over half a million satisfied customers. That's why you should try it. Your money back if you're not satisfied.

Now, I am not politician enough to say whether the above is all exactly true or not; but if it is true, Uncle Samuel is for once in his life not with the majority of his people; and, God helping us, he will sooner or later be straightened up. The Governor of Ohio is in the toils already for having favored the liquor interests rather than the voice and *thundering protests* of the people of this State. He has frankly admitted that he does not think it right and fair that the majority of voters should rule. If Uncle Samuel is in the same boat we want him to get out of it quick.



A CLOTH-COVERED LEAN-TO GREENHOUSE.

The little greenhouse I wrote about in our last issue became so crowded with plants the latter part of April I was obliged to build an annex for some of the hardy plants that would be almost sure to die if put directly outdoors. The annex is very much like the lean-to already described, but made of cheap materials, and covered with cloth instead of glass. In fact, the whole top is cloth stretched on a wooden frame. This frame is hinged up close to the walls of the building, so that it can be raised up vertically and hooked against the wall, leaving the plants exposed to both sun and rain whenever the weather will permit or as deemed advisable. Now, such a structure as this is a splendid arrangement to harden off a great variety of plants before putting them directly in the open air. First, it makes quite a protection when there are cold nights. The cloth cover I found sufficient to keep off a considerable frost; then whenever the sun is too hot for plants just put out, or just received from a distance, the cloth makes a splendid shade. You can drop it in a minute when too hot, and raise it up as soon as the sun comes out again. One thing more: Even during the summer months we often have storms of wind and rain that do a lot of damage to both foliage and flowers of many beautiful plants. I have seen a coleus-bed that cost a lot of

money almost ruined by a driving storm, of wind and rain. Now, this bed or little inclosure can be protected perfectly in an instant from things of this sort; and whenever there is more rain than is really good for the plants, the cloth cover will keep off the greater part of it.

For the market-gardener and lettuce-grower this cloth-covered bed or lean-to affords an easy means of growing most beautiful white crisp lettuce right through the months of July and August. Of course, we can do the same thing with the cloth rolled up on a pole as described in the tomato-book; but this arrangement does not shed rain like our heavy sheeting drawn tight on a frame. It sheds rain much better because there is considerable slant to the roof. Perhaps I should have said in the first place a single window opens from the basement of that big cellar right into this cloth-covered structure. This equalizes the air so it is not apt to be too hot nor too cold when the cloth is let down. The whole thing is made of refuse pine strips, planed on both sides, of course, but just as the buzz-saw left it on the edges. By the use of a little sandpaper these strips could be painted. It is all made of one-inch lumber.

And, by the way, there are many plants besides lettuce that do ever so much better with a little shade from the fierce sun during the middle of the day. When there is a very hot dry spell even strawberries are greatly improved by shade cloth during the hottest hours. Two years ago our experiment station at Wooster, O., had quite a variety of plants kept permanently under a structure covered top and sides with cheesecloth. During a severe drought, when every thing was suffering outside, this cheesecloth protection not only cut off the fierce rays of the sun, but the air was quite a little damper inside than out. The contrast in the looks of a great variety of plants with the same things outside was just wonderful. Of course, when we have cloudy days and plenty of rain, there is no need of any thing of this sort; but where one has plants that are worth a great deal of money I think such protection can be made to pay a big interest on the amount invested.

HOW TO MANAGE SO THE PLANTS YOU BUY WILL NOT DIE.

Somebody told me that one of the largest nurserymen in the United States once made the statement that not one tree in five sent out from the nurseries ever bore any fruit. Now, may be I have made a mistake in the figures. It may have been only one in ten that lived. But this is one thing that keeps up the nursery business throughout the United States and the rest of the world. People get in a craze for beautifying their homes, and buy trees, plants, shrubs, and flowers. These all die; then the following year, when spring comes, they get the fever again, and buy some more. Perhaps this time they get a few of them to live; but it is only after a long experience that they learn to manage stuff of this kind so it does any

good. Another class of well-to-do people make out their order for a lot of stuff, and when it comes they hire Tom, Dick, and Harry to set it out. Now, if the above Tom, Dick, and Harry do not know how to do such work properly, and their employer does not know any better, no wonder the money is wasted. If you have not had experience in this line of work, you have seen neighbors who buy stuff recklessly—yes, foolishly—and let it die. Last Saturday I saw a lot of stuff shipped in from some nursery, standing right out in the hot sun in front of our electric-car depot. Sunday, in going to church I saw the stuff still there in the sun. Monday afternoon it was there in the sun still. I might have asked the agent if he could not put it somewhere in the shade; but I am afraid he would think I was meddling.

Now, one great trouble why the stuff you buy from the beautiful catalogs never does any good is that the shock in moving from the nurseryman's grounds, or, worse still, from the florist's greenhouse, is too great when put out in the sun in the average home garden or front yard. The florist or nurseryman can set the things out himself, and make them live; and in the cities well-to-do people often employ a florist to make a nice bed and put out the plants, especially the ornamental foliage plants. If he does not make a nice bed, and have the stuff live, he does not get any pay. This is a very good plan, but he generally gets pretty *big* pay when he makes a bed that is really a success. Let me now digress long enough to tell a story, and I think you will see where my moral comes in.

When I was in Columbus a few days ago in reference to temperance legislation, etc., I found out in the afternoon about half-past three that I would not be needed any more for that day, nor till about ten A. M. the next. Just as soon as I could catch a train I went down to Xenia, Greene Co., to see my eldest sister; but I stayed there only a couple of hours. From Xenia I took the electric line to Springfield, O. I had been getting some very pretty plants from a greenhouse there, for a very small sum of money; and I was very anxious to see the establishment where they could grow rare and valuable plants for a few cents, that used to cost almost as many nickels. I asked at the hotel how soon I could have breakfast. They thought six o'clock was early enough for anybody. Not so for A. I. R. *when he is in quest of greenhouses.* It was light enough so I could see at half-past four. A little after five I had finished my breakfast at one of the "open-all-night" restaurants; and almost before anybody was stirring I was two miles out of the city at the establishment of Messrs. Good & Reese. Just as the sun was coming up I was going through the hot-beds and cold-frames. Then I managed to get into the greenhouses, and I can hardly tell you what a happy time I had for three or four hours. This is said to be the largest establishment

in the world for growing roses; and recently they have commenced growing all sorts of flowering plants for indoors and outdoors for decorating homes. The greater part of all of these plants—geraniums, pelargoniums, fuchsias, etc., sell at a nickel each or 50 cents a dozen. All of these plants, roses included, are grown in 2 or 2½ inch pots. Just as soon as the roots fill the pots pretty well, and begin to crowd, the plant is turned over to the customer. Soil enough adheres firmly to the little plant to enable it to go quite a long distance by express, and come to hand in perfect order. In fact, I had been getting from this firm beautiful roses in bud and bloom for only 50 cents a dozen. They came more than a hundred miles in such perfect order that the blossoms opened out perfectly, some of them the first day after they were received. Well, this firm not only furnishes all kinds of house-plants grown in pots, but of late they have been putting up a great variety of hardy shrubs for the dooryard in the same way. Of course, the plants are small; but a little plant, right out of the pot, dirt and all, will very soon make a big one.

Now, my visit was prompted largely by a desire to see how it is possible for them to grow plants for a nickel each, that we have heretofore had to pay 20, 30, and even 40 cents for. In just a little time I caught on to the secret. Like other kinds of business in this present age, they do things cheaply by growing the stuff in enormous quantities. Just one illustration. In one of the long greenhouses I saw fuchsias perhaps two feet high, growing so close together that the branches were like heads of grain in a field. The tops of these plants were clipped off, something as we cut off stuff with a sickle. They were loaded in wheelbarrows, and taken to a cool damp room, where men and boys clipped them up into little cuttings. Then some boys, not over 12, put these cuttings in a bed. The bed was covered with clean sharp sand, damp enough to handle nicely. It was leveled off, and then pounded with a square piece of plank with a handle in the center. A boy gave the level surface of the sand quite a hard blow with this leveler. When the bed was level, hard, and firm, another boy laid down a common lath and drew a caseknife each side of it. With a sprinkler the sand was kept dampened to just about the proper consistency. Then a third boy took these same fuchsia cuttings and pushed them down into the sand where the slit was made with the caseknife. The speed with which he handled these little cuttings made me think of the printers in our composing-room. He put them in so fast you could hardly tell what he was doing. In this way they filled beds hundreds of feet long. In about a week or ten days, with the temperature and moisture in the atmosphere kept just right, and the proper shade, these cuttings will have made roots ¼ inch long, or a little more. They then are put into 2 or 2½ inch pots with potting-soil; and when the plant

has made several leaves, and filled its little pot with roots so as to hold the ball of earth from crumbling or dropping off, it is ready to ship. What I have described of the fuchsia is done, with proper variations, according to the nature of the plants, with almost every thing else; and where they produce these plants by the thousands and tens of thousands, it is not at all strange that they can sell them at a profit at four or five cents each. I did not see any of the proprietors. It was probably too early for them to be around; but I was told by the men in charge I could go all over the establishment wherever I chose, and I tell you I appreciated the liberty. There were beds of the most brilliant color, so long that the colors could just be distinguished in the dim distance. A part of the houses are old; but this enterprising firm is building new ones almost all the time; and it was interesting to note the improvements made from year to year in greenhouse-building. Their houses are all of even span, running north and south. It would take too much space to tell you even the names of the plants. Almost every thing is shipped in 2 or 2½ inch pots; but, of course, they have 3 and 4 inch pots for certain customers who prefer to pay more for larger ones. One great advantage of the small pots is the saving of express charges in shipping; and any one who has a few pots and a little skill can make a two-inch plant into a four-inch one in a very short time. The fun of seeing the little bits of things grow into big shapely plants is, to my notion, one of the most interesting things about plant-growing. I believe it is getting to be quite fashionable lately to send out a great variety of ornamental trees, including the high-priced evergreens, with a ball of earth around the roots. Two years ago I was greatly taken up with some blood-red Japanese maples. I paid several dollars for half a dozen of them. They all died, although the florist told me they were perfectly hardy, and would grow as well outdoors as any of the maples. I gave it up in disgust; but now I shall have some little ones grown in pots; and if they are hardy for anybody, I shall make them grow.

Since I made that visit I have asked the firm to give me some figures pertaining to their establishment—amount of business, etc. I submit the statement below:

Our greenhouse covers an area of five acres. We grow about four million rose-plants each year, and about the same number of miscellaneous stock of all kinds, such as chrysanthemums, carnations, fuchsias, hibiscus, palms, ferns, begonias, etc. Our business amounts to upward of a quarter of a million dollars a year; and, though we keep adding to our greenhouses each year, we have as yet been unable to supply all the orders that come to us each season. We are now getting more business than we can handle. We ship to every country on the globe, including the islands of the Pacific.

THE GOD & REESE CO.

It may be that I am giving this firm some free advertising; but I think they deserve it, for, if I am correct, they are pioneers in furnishing the world beautiful little plants of almost every thing for only a nickel.

CONCLUDED IN OUR NEXT.